ENVIRONMENT, SAFETY AND HEALTH
ONSITE TECHNICAL ASSISTANCE
ACTIVITY SUMMARY
JULY-SEPTEMBER 1997

U. S. Department of Energy

During the third quarter, the Office of Environment, Safety and Health (EH) continued to work with DOE field elements in improving safety and health performance through a broad range of technical assistance initiatives. Efforts continued at 9 sites to expand implementation of Enhanced Work Planning (EWP) and these sites continued to realize gains in efficiency and productivity as well as safety. The self-assessment initiative at four sites moved from planning into implementation as the sites completed intensive baseline reviews of current practices and began testing selected improvements to increase worker involvement in self-assessment. Finally, efforts to strengthen performance relating to radiological protection also continued to produce improvements in program structure and implementation.

At the Rocky Flats Environmental Technology Site (RFETS), efforts to increase safety and productivity through enhancing all aspects of work planning and execution continued. Plans were finalized for a workshop at the site to increase ownership and involvement of all levels of management in the improvement initiative. An Executive Committee has been formed to review and approve recommendations for improvements and to help eliminate roadblocks to implementation. A new Job Hazard Analysis tool has been selected for use at the site and between 50 and 100 workers have been trained in use of the tool. New work teams have been formed to use EWP and associated management tools to complete complex, diverse tasks such as processing of approximately 4500 gallons of laboratory liquid wastes in Building 374; planning safe shutdown of the Building 444 cluster, removal of glovebox Benelux in Building 771; removal of the Pencil Tank in Building 771; and deactivation of Building 886.

Work by the Idaho Operations Office (ID) and the Idaho National Engineering and Environmental Laboratory (INEEL) contractor to expand the EWP initiative across the site continued during the third quarter. A site-wide EWP Directorate Steering Committee was established to provide direction and assistance for EWP implementation. The Directorate Steering Committee approved consolidation of the Site-wide EWP Working Team and the Compliance Reengineering Maintenance Team to address common objectives and integrate efforts. The site is working towards a standardized work control process that will be used at all site facilities and by all organizations. The system will establish identical work forms, common terminology, standardized hazard identification and mitigation tools, and a single computerized maintenance management system. The most significant accomplishments for this reporting period included (1) completion of training and implementation of the Safety Improvement Action items, (2) expansion and implementation of the Job Requirement Checklist tool to the entire Idaho National

Engineering and Environmental Laboratory, (3) establishing the EWP Engineering Team, (4) preparation and issuance of standardized site-wide maintenance performance measures, and training and pilot scale implementation of maintenance optimization principles.

A new effort was initiated at the DOE Ohio Field Office (DOE-OH) to institutionalize EWP across all sites within the Ohio Complex. A new DOE-OH EWP Steering Committee was formed with direct linkage to the national EWP Steering Committee and includes representatives from the Fernald Environmental Management Project Office, Miamisburg Environmental Project Office, West Valley Project Office, and from key site contractors within the Ohio Complex. The committee is completing a variety of efforts to ensure consistency in approach and promote best practices including revising the DOE-OH safety policy to incorporate the tenets of EWP, developing performance measures and indicators, and preparing an EWP Implementation Action Plan to guide implementation efforts throughout the Ohio Complex.

At the Miamisburg Environmental Management Project, the EWP implementation team continued to apply EWP principles to improving a wide variety of ongoing operations. The team helped initiate a new project to reduce the time required to generate, review, and approve Health and Safety Plans for environmental restoration projects. EWP has also been used to improve processes for preparing, issuing and approving Waste Generator Permits. To date this effort has resulted in development of new policies and procedures, preparation of a user guide, definition of performance indicators, and development of new training materials. An implementation plan for a pilot project to test the new system has been developed but implementation efforts are on hold pending transition of the contractor on site.

Application of EWP continued to expand at the Fernald Environmental Management Project during the third quarter. The Waste Storage Core Team completed testing to validate improvements in the work management system that substantially reduced the time required to execute work and complete tasks. In addition, the Waste Management and Technology organization completed testing of improvements in the work management system including use of blanket task orders for routine work thereby increasing the amount of work performed. Other EWP efforts at Fernald included efforts by the Property Management and Facility Services Core Team and the Building, Grounds, and Laundry Core Team to study current work management systems and identify potential enhancements. The Fernald site contractor has also established a program to monitor the status of EWP implementation and provide feedback to management on adequacy of implementation.

Within the Oak Ridge complex, EWP has contributed to improvements in the site's safety management systems, hazard analysis process, and work control systems. Efforts are currently focused on improving work control within Enriched Uranium Operations and the Environmental Management Enrichment Facilities. EWP contributed to elimination of work control bottlenecks, increased efficiency in maintenance jobs, and successful restart of over 100 processes in the "9212 Complex" in the Y-12 Plant.

The implementation of a new "Standing Work Package" and "Skill-of-the-Craft" processes produced significant cost avoidances and helped accelerate restart efforts. By clearly identifying low hazard and low complexity jobs, the EWP effort has helped to eliminate resources committed to providing "full planning" for routine and minor maintenance jobs that can be completed through more simplified approaches. Other efforts included further planning and development of the Work Planning and Permit Information System, testing of the system at Oak Ridge facilities, and finalizing a revision to the Y-12 Maintenance Planner's Guide.

EH continued to provide technical assistance to several sites in improving radiological protection programs. At the Hanford Site, EH technical specialists worked with staff at the 222-S Analytical Laboratory to help improve waste management through enhancing team performance and improving communications. Efforts at the Tank Waste Remediation System focused on improving integration of radiological protection functions into the line organizations. EH technical specialists also continued to support development of the site's Radiological Control Center of Expertise. Efforts at the Rocky Flats Environmental Technology Site encompassed feedback to the contractor and DOE on conduct of operations, radiological protection, and control of work. EH technical specialists also continued to work towards improving scheduling of Radiological Control Technicians at the site to increase effectiveness and reduce disruptions of planned work.

Efforts also continued in the third quarter to develop and test improvements in operational awareness programs and in self-assessment programs and processes at four DOE sites. Work during this period focused on developing innovative tools to increase worker involvement in self-assessment, improve utilization of data collected through self-assessment efforts, and to heighten line management ownership and accountability for self-assessment. In addition, EH continued to provide technical support to DOE site groups developing improved operational awareness programs that will provide more comprehensive information to DOE management regarding ongoing contractor operations. Initial results were shared with Standards Process Action Team 15 which is currently examining assessment processes in DOE. Representatives from demonstration projects at the Rocky Flats and Idaho sites also met with the Assistant Secretary for Environmental Management to discuss innovative aspects of their efforts to increase worker involvement in self-assessment.

At the INEEL, the Idaho Operations Office (DOE-ID) in cooperation with the site contractor selected the Radioactive Waste Management Complex (RWMC) to conduct a pilot project testing selected improvements in self-assessment. The Self-Assessment Pilot Team initially conducted a survey of line managers, supervisors, engineers, craftsmen, foremen, planners, and others to identify current self-assessment activities. The team then decided to work on four specific improvements to promote additional worker involvement and to emphasize continuous improvement. These improvements include new processes for (1) eliciting employee suggestions, (2) conducting management, employee, and team walk-abouts; (3) performing job observations and; (4) completing post

activity reviews. The team is also working to improve information management processes and tools to capture, communicate, evaluate, prioritize and trend results from self-assessment activities. Specific enhancements to the site's electronic data management system to support the self-assessment pilot project have been identified and are under development.

A Process Development and Improvement Team at the Rocky Flats Environmental Technology Site (RFETS) continue to make significant progress in developing and testing new self-assessment tools and processes to increase worker involvement in self-assessment. The team completed an extensive evaluation of current processes used at RFETS to collect data on performance and decided to develop a new combined job observation and employee suggestion program to identify issues associated with performing work and ways to improve work processes. A job observation/suggestion card was developed to provide a mechanism for employees to provide input to supervisors. Use of this card will be tested on projects relating to maintenance, waste management, and decontamination and decommissioning. The team is also guiding development of a new database management system for use in tracking items identified through the new program including the status of actions undertaken in response to issues.

At the Lawrence Berkeley National Laboratory (LBNL), the DOE Berkeley Site Office (DOE-BSO) continued to develop a new Operational Awareness Program with EH technical assistance. A Process Improvement Team continued to finalize a new Operational Awareness Guide that will establish the framework for this new program that establishes a partnership between DOE-BSO and LBNL to improve routine monitoring of ongoing activities throughout the laboratory. During the next quarter, efforts will focus on training personnel and implementing the new guide.

A comprehensive baseline review of current self-assessment activities in LBNL's 14 divisions was completed during the third quarter and a draft report documenting results from the review was prepared. The review identified numerous good practices that can be extended laboratory-wide. Examples include cross-shop self-assessments in which members from one craft group evaluate conditions in other shops to identify potential issues and improvement opportunities, the Quality Assurance/Improvement and Environment, Safety and Health through Self-Assessment and Teamwork (QUEST) program in which all division personnel participate in teams that complete ongoing reviews of performance in various functional areas, and use of a Self-Assessment Inspection Reference Manual to guide selected walk-throughs and evaluations. Based on analysis of data collected during the baseline review, recommendations were provided to improve the overall self-assessment process by increasing employee involvement and by emphasizing continuous improvement. LBNL is currently formulating plans for a new Continuous Improvement Suggestion System that will address key elements of both recommendations by encouraging employees to provide input on how to improve the work environment and accomplish assigned mission activities "cheaper, safer, better, and faster".

The DOE Brookhaven Group (DOE-BHG) continued to work in the third quarter on development of a new Operational Awareness Program. EH provided technical assistance in preparing an issue analysis paper suggesting a framework for the Operational Awareness Program, identifying issues to be addressed, and providing recommendations on program development. DOE-BHG's efforts focused on developing a new vision statement for the office, a draft program document, and an organizational structure with sufficient resources to implement the draft program. The DOE-BHG management team met to review draft materials and decided to emphasize development of a new, enhanced facility representative program as the first key element in the Operational Awareness Program.

At the Brookhaven National Laboratory (BNL), the Self-Assessment Improvement Team completed a study to baseline current processes and programs at the Laboratory. The team reviewed key documents and conducted interviews with a cross section of BNL staff members to identify noteworthy practices that should be promoted throughout the laboratory. These good practices, along with several recommendations to further improve self-assessment at the laboratory were documented in a report prepared for laboratory management. BNL management is currently reviewing these recommendations and the team will work with management to develop detailed implementation plans for those recommendations determined by laboratory management to have the greatest value. ■

Table of Contents

APPENDIX A: ENHANCED WORK PLANNING ACTIVITIES

ENHANCED WORK PLANNING ACTIVITIES

During the third quarter, efforts to implement Enhanced Work Planning (EWP) continued at 9 DOE sites. New projects were started at a number of sites applying EWP principles to a broad range of work activities involving diverse hazards. DOE field elements continued to achieve dramatic results including improvements in safety and health, efficiency, productivity and performance. The following summarizes activities performed under the EWP initiative during the third quarter.

EWP STEERING COMMITTEE

The Enhanced Work Planning (EWP) Steering Committee met October 14th and 15th, 1997 to discuss the current status of EWP in the DOE Complex and to determine the focus and subsequent goals of the Initiative during Fiscal Year 1998. The EWP initiative is in a critical growth stage. In order for the EWP initiative to expand and to continue to be successful, the Steering Committee agreed that the following events should occur: First, those sites who claim involvement with the EWP initiative must apply the full rigor and scope of the EWP process and principles. Conversely, those sites unwilling to commit to full engagement will be unable to claim EWP involvement. Secondly, DOE sites with the potential to implement EWP programs should be contacted and, if interested, supported in the EWP implementation process. Thirdly, the focus of the EWP Initiative should be on developing and implementing a consistent approach across each site and eventually across the DOE complex in the areas of work control, hazard analyses, and genuine worker involvement. Lastly, EWP integrates well into other EH programs and initiatives (e.g., Integrated Safety Management Systems, Voluntary Protection Program, Chemical Safety, Lessons Learned, Waste Minimization). Better coordination, communication and appropriate integration should be a core focus.

To facilitate this focus, the Steering Committee agreed on nine goals for the first and second quarter of fiscal year 1998. Members of the Steering Committee and members of EH-53 staff committed to specific action items, deliverables, and schedule to achieve the following goals:

1. Develop consistent, complex-wide performance indicators and feedback mechanisms to measure and achieve worker involvement, productivity, a continuous improvement culture, and the degree which EWP becomes institutionalized across the site.

2. Make products and tools developed under EWP programs easily accessible to Complex, including developing a workshop to share tools, updating the cross-pollination document for the homepage, and making these products and tools available on the homepage.

3. Develop a guide for implementing a graded approach to planning and executing work that will provide consistency and defensibility throughout the Complex and the DNFSB.

4. Develop and share methods to promote greater worker involvement in the EWP

process and enhance the "attractiveness" of the initiative to the workforce.

5. Evaluate and validate how the enhancements developed under the EWP process are working. Document this validation.

6. Promote the idea that EWP is more than a tool for maintenance organizations and has worked successfully in other areas of work control (e.g., waste management, security, engineering, operations).

7. Promote use of EWP training curriculum to better enhance the consistency of EWP programs across the DOE complex.

8. Determine how EWP should integrate with and into other DOE programs (e.g., EM, ER, DP) and initiatives (e.g., VPP, ISMS, ChemSafety, Lessons Learned, Waste Minimization).

9. Develop an "umbrella" criterion for determining when EWP can be declared successful which can be used by the sites to develop site-specific closure criteria.

EWP has come a long way since its conception, but one thing has remained consistent in its message: EWP is, and always should be, focused on promoting a step change in the efficiency and safety of the work management process. The focus of the Steering Committee is to promote, support, and drive this process. The time when the Department had enough money for not only each site, but often facilities within a site, to have their own work management process has passed. Congress, and the tax payers they represent, are demanding that we effectively utilize resources. The Steering Committee is committed to establishing an environment of open and continuous improvement where new and innovative ideas are circulated, debated, tested, and if deemed acceptable, applied. By creating this environment, we cannot help but move toward a consistent approach to work management, as each site adapts from or adds to a common menu of the best.

EWP TRAINING CURRICULUM UPDATE

The EWP Curriculum was shipped to the Core Team Leaders at each of the sites currently implementing EWP. Additional copies for sites interested in implementing EWP and using the curriculum is available through EH-53.

The EWP Training Curriculum provides an introduction to the EWP process and includes training on EWP elements and implementation for personnel involved with requesting, planning, and executing work at DOE sites. It can be tailored to meet site-specific needs and also provides a vehicle to share information concerning EWP, thereby enabling development of consistent, defensible performance indicators, and sharing of lessons learned.

The curriculum is designed for both DOE and contractor personnel. Consisting of three courses and a team training "toolbox," courses may be used separately or in combination for the various groups involved with EWP at DOE sites.♦

IDAHO SITE-WIDE ENHANCED WORK PLANNING

The Idaho Operations Office (DOE-ID) and its management and operating contractor continued to actively expand Enhanced

Work Planning (EWP) across the Idaho National Engineering and Environmental Laboratory (INEEL) site. The enhanced work control process that originally was applied to the Idaho Chemical Processing Plant (ICPP) has been completed, providing many tools and lessons learned as a model for revising work control systems at other INEEL facilities and organizations. The goals of the site-wide work control system are to increase worker involvement, improve worker productivity, achieve better planning input from quality, environment, safety, and health, and improve cost effectiveness.

In Fiscal Year 1997, the pilot program conducted at the ICPP revised the maintenance work control system and incorporated EWP principles using a graded approach to work planning, early worker involvement, and team reviews. The revised process resulted in improved integration of planning for the nuclear operations activities. A computerized tool for consistent and rigorous hazard identification called the Job Requirements Checklist (JRC) was developed to improve integration of safety and review requirements in the work planning activities at the ICPP. The revised process improved productivity (reduced work order backlog) and reduced costs.

To expand EWP to all site facilities, DOE-ID and the management and operating contractor established the INEEL site-wide EWP Directorate Steering Committee to provide direction and assistance for EWP implementation. This senior management team represents DOE-ID and numerous contractor organizations including Site Services, Nuclear Operations, Environmental Management, Waste Operations, Projects/Construction, TAN/SMC Operations, and Advanced Engineering Development Laboratories

organizations. The EWP Team Leader is supported by a Site-wide EWP Working Team with representatives from all facilities and major organizational functions.

The Directorate Steering Committee provides site-wide coordination and assistance to the EWP Team Leader in expansion of the EWP process. The EWP Directorate Steering Committee meets biweekly with the EWP Team Leader and sub-team leaders. They have guided the development of the plan for establishing EWP at each facility by providing direction to and oversight of the EWP process. The Directorate Steering Committee approved the consolidation of the Site-wide EWP Working Team with the Compliance Reengineering Maintenance Team reducing duplicative efforts and combining resources to address common objectives and integrate functions. EWP and Compliance Reengineering complement each other by focusing on different aspects of performing work safely and efficiently. EWP focuses on work control and job planning while Compliance Re-engineering activities center on reliability, availability, and efficiency. Both consider the graded approach as a key element and both recognize the use of performance indicators as an essential strategy to understanding and improving performance. In the last reporting period, the Site-wide EWP Working Team recommended and received approval to integrate the activities of the two teams under one dedicated EWP Team Leader.

The Site-wide EWP Working Team proposed that the work control process at all site facilities and organizations be standardized to a common practice using the same work control system and procedure, the same performance indicators, and the same EWP tools and elements. This standardized approach will improve safety and efficiency, provide greater flexibility for resource use across facilities, support matrix management and projectization, and simplify training requirements.

The elements of the standardized work control system are a single site-wide work control system with identical work control forms; common terminology, roles, and responsibilities for work control participants; a single computerized maintenance management system; one site priority rating system; a common hazard identification tool; and standardized hazard mitigation practices.

The Directorate Steering Committee approved the plan to proceed with a standardized approach to work control. The EWP Site-wide Working Team leaders and Compliance Re-engineering leader developed a detailed plan, schedule, and cost estimate and received approval from the EWP Directorate Steering Committee to complete the FY1997 activities. This plan defined the reconfigured organization for site-wide EWP, including Working Team and Sub-team membership and required resource commitment. With its integration with the Compliance Re-engineering Team, the Working Team includes increased operations personnel and greater craft and technician involvement.

The most significant accomplishments in this reporting period were: (1) completion of training and implementation of the Safety Improvement Action items, (2) expansion and implementation of the Job Requirement Checklist tool to the entire INEEL, (3) the establishment of the EWP Engineering Team, (4) preparation and promulgation of

standardized site-wide maintenance performance measures, and (5) training on and pilot scale implementation of maintenance optimization principles. The technical work scope for EWP in FY1998 was presented to and approved by the EWP Directorate Steering Committee. The proposed support for continuing site-wide EWP implementation was presented to the Compliance Re-engineering Board and approved for FY1998 funding.

A major accomplishment by the Site-wide EWP Working Team in FY1997 involved resolution of work control issues identified in the contractor's Integrated Safety Plan. The safety action plan issues include work order ownership, rework reviews, team reviews, value-added significance, safely making field changes, removal of unnecessary "boilerplate" information, and criteria for final work package approval. These issues were fully resolved and implemented into facility-specific processes by the multi-functional, multi-organizational EWP Working Committee. Training requirements concerning the changes in the work control practices were completed this period using a videotape developed by the Site-wide EWP Working Team. This videotape, co-developed by the EWP team members and the INEEL Institute, discusses the changes and the impact on employees, and communicates the site-wide EWP activities. The INEEL video production department completed the video, which was shown to employees in staff meetings and safety meetings.

The EWP Directorate Steering Committee instructed the EWP team to focus on three major EWP issues during the last quarter in FY 1997: standardized hazard identification; team planning and review; and improved worker involvement. The Site-wide EWP Working Team formed three new teams to address these issues, including an EWP Tools Team, a Performance Indicator Team, and a Maintenance Optimization Team to be led by the dedicated full time site-wide EWP team leader.

The EWP Tools team revised the Job Requirements Checklist (JRC) to make it applicable to all INEEL organizations and facilities. In April 1997, DOE-ID conducted an assessment of the INEEL maintenance work control process and identified needs for improvement. The EWP Tools Team addressed two major concerns: (1) need for a consistent, standardized process to incorporate team planning into maintenance work package development, and (2) ensuring worker involvement in the hazard identification and team planning processes. In May 1997, the EWP Tools Team began developing a computerized tool for site-wide use in for standardizing hazard identification for maintenance work. The tool carries the same name as the initial ICPP tool, JRC. The site-wide tool uses many of the same questions as the tool developed at ICPP, but lessons learned at the ICPP have also been incorporated along with many other good ideas from hazard identification systems used throughout the INEEL.

The new JRC has been improved and employs a more effective graded approach. It uses questions developed by area experts and is based upon review checklists already used by the functional support organizations. Organizations involved in developing the site-wide JRC included Radiological Engineering, Occupational Safety & Health,

Quality & Performance Assurance, Nuclear Engineering/Safety Analysts, Environmental Assurance, Plant Engineering, and Planning and Scheduling.

The JRC consists of a series of logical questions for determining the required rigor of input, planning, review, and approval, including required permits and other hazard mitigation requirements. The logic keeps the primary owner from answering non-applicable questions for site-specific areas. The JRC also establishes a standardized graded approach consistent with the complexity, familiarity, and risks associated with the proposed work and ensures that the degree of involvement by crafts, supervision, and support organizations is consistent and appropriate. The JRC recommends the required coordination between planning, workers, and support organizations and allows not involving other reviewers when their input is not needed. This tool is expected to simplify and streamline maintenance work planning, standardize review practices, and reduce required reviews for simple, low-risk tasks while maintaining team review and approval for complex, high-risk tasks.

The EWP Tools Team recognized that including team reviews in the site-wide work control process ensures that individuals from all the functions that have value to add in planning a work package, including craft workers, are assembled as a team. The work control procedure establishes a formal process to define the need for a team and to specify the makeup of the team based on the complexity and risk of the job. Involving workers on the work planning team is an effective means of using worker experience for identifying work hazards, improving work efficiency, and eliminating unnecessary requirements. Worker involvement during planning activities, including walking down the job at the work location, is effective since these employees are the ones who will perform the work, know the equipment, and understand job hazards in performing work. In addition, team review and approval on high-complexity, high-risk jobs is more timely since reviews are completed simultaneously rather than sequentially.

One key feature of the revised JRC is that the software platform will be compatible with the new Computerized Maintenance Management System (CMMS). It also provides links to LMITCO Intranet based documents and home pages to assist the user in answering questions, identifying required planning for mitigation of hazards, and identifying when additional work control documents or permits are required. The JRC also uses a work request screen that any employee can complete on the LMITCO Intranet and forward electronically to the appropriate work control center.

The Site-wide EWP Working Team developed an agreed-upon single work control flow process at the INEEL for all maintenance activities. The work control process will use the standardized work order categories in concert with the new site-wide CMMS. Early in FY 1998, the team will finalize the standardized site-wide process flow including common roles and responsibilities, common terminology, and perform gap analysis to determine changes required for site-wide implementation.

The Site-wide EWP Working Team proposed and received approval from the EWP Directorate Steering Committee to form an EWP Engineering Team. This team

will evaluate engineering practices as they interface with the work control and work planning process to establish standardized INEEL protocol, terminology, and flow process. This multi functional team is led by an ICPP engineer and includes representatives from all major INEEL organizations. The scope of this effort will cover engineering practices including functional roles and responsibilities, equipment ownership, project authorization, planning, work performance, and job close-out.

During the third quarter, the EWP Engineering Team presented a proposed implementation plan to standardize and integrate the engineering process and practices with work control and work planning. The team concluded that applying EWP principles such as early worker involvement, team reviews, and graded approach to engineering functions and the engineering interface with the work control process can improve work planning and promote safe and efficient work execution.

The implementation plan for standardizing engineering interface with site-wide work system was reviewed and approved by the EWP Directorate Steering Committee. The plan included an assessment of the adequacy of current work control-related engineering sub-processes. The plan identified the engineering sub-processes that are included in, and interface with, work control processes. Finally, it identified deficiencies in those engineering sub-processes and describes actions recommended for improvements to support standardized, safe, and efficient work.

The EWP Engineering Team initially developed a comprehensive list of perceived weaknesses and issues related to engineering processes. These were then arranged into five focus areas. The implementation plan developed by the EWP Engineering Team addresses major issues identified in these areas:

- Engineering Roles, Responsibilities, and Interfaces
- Engineering Documentation and Configuration Management
- Hazards Identification/Prevention in the Engineering Process
- Turnover and Close-out of Engineering Activities
- Continued Support and Process Improvement of Equipment/Systems

Further evaluation of these issues was completed, and the following two root issues were identified:

- Roles and responsibilities in the engineering sub-process are not clearly defined or consistently understood.
- Engineering sub-process methods are inconsistent and inadequate. Specifically, there is inadequate up-front planning/criteria development with little or no worker/customer involvement.

The titles, responsibilities, and authorities of engineering personnel vary greatly among the different programs and facilities at the site. Definitions of roles and responsibilities are generally not clearly documented and understood. It is essential to effective work control that the responsibilities and authorities of all involved personnel,

including engineers, be universally understood. Once those responsibilities are defined, they can be communicated to engineering personnel through appropriate training. Engineers can then be held accountable by management for fulfilling their assigned and understood responsibilities.

Effective tools and methods can significantly improve efficiency and consistency. Good procedures are necessary for work execution and other tools, such as up-front planning, early worker involvement, and team reviews, need to be developed. However, tools by themselves will not bring the desired outcome of standardized, safe, and efficient work. Management commitment to assure effective implementation and continued application of these tools will also be necessary.

The EWP Performance Indicator system defines *Maintenance Excellence* as, "Safely meeting customer needs in a timely manner and at a cost competitive rate to ensure reliability of equipment and structures commensurate with INEEL missions." Four key quality objectives associated with Maintenance Excellence include:

- Safe execution of work
- Cost efficiency of maintenance activities
- Responsiveness in performing maintenance activities
- Reliability/Availability of Systems, Structures, and Components

The EWP Performance Indicator system has developed and promulgated performance measures or performance indicators to measure performance against these quality objectives for site-wide implementation. These indicators will provide a standardized tool to baseline present maintenance performance and to measure improvements achieved through site-wide EWP enhancements.

The EWP Maintenance Optimization Team sponsored training on preventative maintenance optimization principles that was delivered to approximately 30 maintenance personnel from most major INEEL facilities. The training was performed by a knowledgeable subcontractor with highly regarded credentials and experience in the area of preventative maintenance optimization. Following the training, these principles were piloted on one system at the ICPP Coal Fired Plant to reinforce the techniques learned during the training. The pilot resulted in an annual saving of approximately $15,000 for one system due to a technically justified reduction in maintenance requirements. The concepts of maintenance optimization will be exported to additional INEEL facilities in FY1998 under leadership of the EWP Optimization Team.

HANFORD ENHANCED WORK PLANNING

The DOE Richland Operations Office (RL) and the Hanford contractor have developed an Integrated Safety Management System (ISMS) Plan in response to DNFSB Recommendation 95-2. A contractual obligation for the Hanford contractor and its subcontractors, the ISMS will integrate safety into all aspects of work management. Enhanced Work Planning (EWP) elements are an integral part of the ISMS and

therefore EWP is fundamental to safety and work management at Hanford. RL and the integrating contractor signed the ISMS Plan during this reporting period and implementation of the ISMS will begin immediately. Two facilities, K Basins and Tank Waste Remediation System (TWRS), are designated in the ISMS schedule as priority facilities.

The ISMS implementation is based on twelve guiding principles and seven core functions supported and defined by expectations. These expectations define a role coupled with a responsibility assigned to an organization or individual and establish a set of "measurable or verifiable criteria" for external/internal assessments. In order to support EWP implementation, the site core team leader has developed a document listing the key EWP elements underscored by these ISMS expectations. This document will serve as a guide to verify each facility's level of EWP implementation as well as assisting in meeting the requirements of the ISMS.

The site EWP Team Leader has reassembled the EWP Core Team which has been re-designated as the EWP Work Management Team. Craft and management representatives from each of the major facility's subcontractors/facilities serve as members of the committee which is chaired by the site EWP Team Leader. The team will focus on the status of EWP at each of the facilities and assist with EWP integration into each facility's work control process. The team has met twice and is establishing a diverse membership, charter, agenda, objectives, and goals. EWP activities at each of the facilities are currently being baselined along with current work management processes and practices.

The EWP Work Management Team will also assist in forming facility work control/management teams. Each facility will evaluate their current work control process and develop an enhanced "EWP integrated" process that satisfies the expectations listed in the ISMS Plan. Hanford site facilities are in various stages of EWP integration. This can be an advantage in that some of the facilities can assist other facilities just beginning to develop EWP processes. Lessons learned from the more advanced EWP facilities can be applied to the newly established EWP facilities. A slight disadvantage may be the amount of time the EWP Work Management Team will need to establish EWP processes at each facility and subcontractor. The EWP Work Management Team will monitor the facility work control/management teams as they identify needed enhancements, establish and implement these enhancements, develop performance measures, and design processes to meet the expectations of the ISMS Plan. Several facility work control/management teams have been formed and are well into establishing a process for their facility.

Currently, many facilities at Hanford are implementing EWP processes. B Plant is one of the most advanced of these facilities. Recently, B Plant completed several major milestones including the transfer of contaminated organic solvents from temporary storage to Tennessee where it will be used in a fuel mix for an electrical generation plant resulting in cost avoidance of $500,000. The use of enhanced work processes resulted in reduction of overall surveillance and maintenance costs to 38% of FY 1995 actualities; and, work task life cycle was reduced from 76 days to 38 days. B Plant deactivation was authorized in October, 1995, and was expected to take

seven years. The expected completion date of the project is now September, 1998.

K Basin and Tank Waste Remediation System, two priority facilities ISMS implementation, are scheduled to be completed by June 30, 1998 and March 31, 1999 respectively. Both facilities have implemented EWP into their work control processes. The first priority of the EWP Work Management Team will be to determine how much progress these two facilities have made in utilizing EWP elements in their work control process. Preliminary observations indicate that both facilities are utilizing multi-disciplinary work teams, promoting worker involvement in the work control process and applying a graded approach.

The site EWP Team Leader continued to meet with the ISMS Leadership Team during the third quarter. These meetings include discussions on the status of the ISMS implementation, progress, and/or potential problem areas. Communication from the various facility work control teams as well as the EWP Work Management Team is also accomplished through the site EWP Team Leader's participation. ISMS Leadership Team members continue to support facility work control teams by offering to participate in their meetings to discuss ISMS implementation requirements and expectations. Their presence at these meetings also provides an opportunity for one-on-one conversation between the various working levels and the ISMS leadership.

A JHA Implementation Team has been established. This team is developing an optimized, automated JHA tool that meets all the ISMS expectations, supports the improvement of the work control/ management and hazard analysis processes, is consistent with EWP elements integrated into the ISMS expectations, and provides a tool that meets the needs of facilities and projects. The JHA assists with work planning and hazard identification.

Priorities for the next fiscal year include successful ISMS implementation for two of the Hanford facilities. During this same timeframe, the EWP Work Management Team plans to baseline EWP activities at all the facilities currently integrating EWP into their work planning process; assist the facilities currently trying to establish EWP in their process; and complete lessons learned for those facilities completing their projects. EWP status will be determined by utilizing a document listing the ISMS expectations associated with the key EWP elements. As an example, one ISMS expectation states that, "Major subcontractors develop a graded method to authorize work to be performed within their facilities." By maintaining this graded method, the subcontractor would begin to achieve the EWP element requiring a graded approach to work management, based on risk and complexity. This document will provide consistency as the EWP Work Management Team completes the baseline process.

The signing of the ISMS Plan by RL and the Site Integrating Contractor indicate a commitment to integrate EWP into the daily operation of every Hanford facility. The successful implementation of the ISMS will be critical to the work planning and execution processes which protect the workers, public, and environment. The establishment of the ISMS Leadership Team, the EWP Site Core Team, and the

JHA Implementation Team will help to assure this success.♦

Hanford Occupational Health Process (HOHP)

In July, the Project Hanford Management Contractor (PHMC) completed its development effort for the Integrated Safety Management System (ISMS) which establishes Enhanced Work Planning (EWP) as fundamental to the work management process and also provides for implementation of the Hanford Occupational Health Process (HOHP). Implementation of the automated tools Employee Job Task Analysis (EJTA) and Job Hazard Analysis (JHA) that support ISMS, EWP, and HOHP are also prescribed for site-wide implementation.

At the end of June, the PHMC and ERC had completed EJTAs for virtually all employees. Analysis of the information through the Risk Management Medical System (RMMS) was then conducted and reports have been forwarded to line management regarding the new set of medical qualification and monitoring programs indicated for workers. Preliminary results indicate significant change in medical program placements and show great opportunity for improvements in the quality of the occupational health process, as well as in efficiency and cost effectiveness. An independent quality review is currently underway to provide assurance of EJTA accuracy. When completed for each contractor/subcontractor, implementation of the newly indicated program placements will occur.

Upon completion of the ISMS, the PHMC established a JHA Implementation Team to refine the automated JHA to meet all ISMS and EWP expectations and to support its implementation as part of EWP and HOHP implementation through ISMS. This multidisciplined team is comprised of representatives from various PHMC organizations and facilities operated by major subcontractors. An optimized JHA tool is to be ready for implementation in the field early in calendar year 1998.

Historically, DOE and its contractors have placed employees in various medical, training, and other occupational health programs based on administrative decision. For instance, enrollments in medical programs have often been made based on work area location, job description, job classification, or other type of general categorization. This administrative approach often has little relationship to actual risk; that is, the type, significance, and degree of exposure to hazards. As a result, medical and training program assignments do not always reflect those warranted based on hazards and exposures.

Hanford Site has developed and implemented an enhanced process, the HOHP, that discards the historical administrative approach to occupational health and replaces it with a risk based approach. Through effective hazard analysis and effective communication, information is gathered and analyzed to provide the basis for medical and training program placement based on risk. This process results in improvements in the efficiency, cost effectiveness, and quality of medical programs, and also provides for effective communication of hazards. It also provides for timely communication of information related to the health of the workforce, such that current control measures can be verified

and other preventive measures can be implemented, as necessary.

Information is essential in a risk based approach to occupational health. Clearly, if a risk based approach is taken, up to date information regarding risk is needed for each employee. HOHP applies two automated tools to provide this information; the Employee Job Task Analysis (EJTA) and the Job Hazard Analysis (JHA).

EJTA is used to compile hazards that can be reasonably predicted or anticipated for the upcoming year for each employee. EJTA is completed for each employee and updated annually, or more frequently if the employee's job or related hazards significantly change. For nonroutine work where hazards cannot be precisely predicted until the work is planned, the JHA is integrated into the work planning process and the Potential Exposure Hazards section of the JHA is used to identify and report exposures of significance to supplement EJTA information. In combination, these two tools provide the necessary information to place employees in proper medical qualification and monitoring programs, and to maintain these programs current relative to actual work activities, hazards, and exposures.

Information from these two tools is immediately and electronically forwarded to the automated RMMS operated by the medical contractor. RMMS analyzes the information through pre-approved decision logic to place employees in proper medical programs. The decision logic is developed by the HOHP Advisory Council comprised of DOE and Hanford Prime Contractors and approved by DOE.

Reports to line management are provided regarding placements of employees in their concurrence. Based on the placements, line management can then remove any unnecessary, self-imposed requirements for medical qualification and monitoring.

During work planning, line management can also be advised of the status of workers regarding requirements for medical qualification and monitoring, such that readiness can be assured when the task is to be worked.

HOHP applies the principles of EWP to improve efficiency, cost effectiveness, and safety. The risk based approach is one of the fundamentals of EWP. In addition, teamwork is applied between line management, industrial hygiene, other safety disciplines, and workers to identify hazards and exposures. Workers are involved in both EJTA and JHA completion. Institutionalized communication occurs at all levels; for instance, between line management, safety, and workers while completing the EJTA and JHA, and between medical, the employer, and the employees when evaluating results and implementating appropriate actions based on results.

Currently, EJTA's have been completed for all PHMC and Environmental Restoration Contractor (ERC), employees. In addition, Pacific Northwest National Laboratory EJTA's are well underway. DOE is also completing EJTA's for its workforce. In total, approximately 9,000 EJTA's have been completed. EJTA analysis by RMMS demonstrates that significant change will occur in medical program placements, resulting in improved quality, efficiency, and cost-effectiveness. Many employees are enrolled in certain medical programs

unnecessarily, while others should be included in various programs and have historically not been enrolled. Action to change employee placements in medical programs is being phased in as an independent quality review of EJTA's is conducted.

In addition to optimizing medical program placements, benefits are also being realized in hazard communication and requirements management. For instance, through involvement in EJTA and JHA completion, workers have commented that they now understand the reason for their medical exams and for hazard controls in the workplace. Also, unnecessary blanket requirements have been eliminated for HAZWOPER medical monitoring at various work locations.

HOHP continues to evolve and improve. Radiological Control issues such as bioassay and dosimetry requirements are soon to be incorporated into EJTA and HOHP. Refinement of the automated tools are being made based on lessons learned from the initial round of EJTA completions. The automated JHA is being improved and is to be implemented by the PHMC through its Integrated Safety Management System initiative.♦

OHIO FIELD OFFICE ENHANCED WORK PLANNING

The Ohio Field Office (DOE-OH) has formed an EWP Steering Committee to promote consistent implementation of EWP and its key principles at all of its sites. This initiative is directly linked to the National EWP Steering Committee that is providing guidance and support for ensuring consistent approaches in implementing EWP across the DOE Complex. The linkage between the National EWP Steering Committee and the DOE-OH EWP Steering Committee results from two representatives on the National EWP Committee, one from DOE-OH's Office for Compliance and Support and one from Fluor Daniel Fernald, that also serve on the DOE-OH EWP Steering Committee. This not only helps provide a more consistent approach at DOE-OH sites, but also provides the mechanism for DOE-OH to assist the National effort in such areas as the development of DOE-wide EWP performance measures and performance indicators. This relationship between the National EWP Steering Committee and DOE-OH EWP Steering Committee has helped in initiating new EWP efforts this quarter.

The DOE-OH EWP Steering Committee is chaired by a line manager from the Office for Compliance and Safety, and is composed of representatives from the Fernald Environmental Project Office (FEMP), Miamisburg Environmental Project Office (MEMP), West Valley Project Office (WVPO), and contractor representatives from each of the three sites along with EH technical specialists. Presently, a representative from the new Mound contractor, Babcock & Wilcox of Ohio (BWO) has yet to be named.

The Steering Committee has made significant progress toward implementing EWP within DOE-OH since its inception in August. An organized approach to implementing EWP throughout DOE-OH has been established that consists of developing an EWP Steering Committee Charter, revising the DOE-OH safety policy to incorporate the tenets of EWP, developing performance measures and indicators that will be used throughout DOE-OH to track

EWP implementation progress, and formalizing an EWP Implementation Action Plan to assure a more thorough and consistent approach among all of the DOE-OH sites.

The DOE-OH EWP Steering Committee Charter was drafted by the Committee and circulated for review and comment. Comments were considered by the Committee and incorporated, as appropriate. The Charter is presently awaiting final signature by the DOE-OH Acting Assistant Manager for Compliance and Support.

The DOE-OH EWP Steering Committee revised the existing DOE-OH safety policy to incorporate the tenets of EWP. Specifically, changes to the policy were made to endorse implementation of EWP and Integrated Safety Management (ISM) for DOE-OH sites. A draft of the modified safety policy was circulated for comment. Comments were received by the Committee and are presently being incorporated into a final draft that is expected to be approved by the DOE-OH Office for Compliance and Safety early next quarter.

The DOE-OH EWP Steering Committee is developing specific performance measures and performance indicators to define and track EWP implementation progress within the Field Office and at its sites. In developing and adapting these tools, the experience from Fluor Daniel Fernald was applied along with experience from other DOE sites. The revised EWP performance measures have been submitted to the DOE-OH Change Control Committee for approval. The "roll-up" of site specific performance indicators from Fluor Daniel Fernald into DOE-OH performance indicators will assist DOE-OH in achieving its objective of consistency in EWP implementation and will provide the framework for performance indicators that reflect EWP activities at all DOE-OH sites. In addition, this approach will serve as a model for use by the National EWP Steering Committee in defining a DOE-wide set of performance measures and indicators.

The DOE-OH EWP Steering Committee prepared other implementing documentation including a draft "DOE-OH Enhanced Work Planning Implementation Action Plan" which is still under review by the Steering Committee. The Action Plan defines the scope, objectives, major tasks/subtasks, and schedules for EWP implementation within DOE-OH and its sites. The Action Plan will provide direction and establish expectations for EWP implementation for DOE-OH and at the same time provides flexibility so that each DOE-OH site can adapt their approach to meet site specific needs.

During this quarter, the DOE-OH Acting Assistant Manager for the Office of Compliance and Support prepared for an upcoming EWP presentation at the DOE-OH Summit Meeting at West Valley, New York in October 1997. The newly appointed DOE-OH Manager will attend this meeting. The presentation was developed to brief the new Manager on the DOE-OH EWP Steering Committee initiative and to communicate EWP expectations to all Site Offices and contractor representatives at the Summit Meeting.♦

FERNALD ENHANCED WORK PLANNING

During the third quarter of 1997, efforts to expand the application of Enhanced Work Planning (EWP) principles continued at the Fernald Environmental Management Project. The Fernald Site contractor, Fluor

Daniel Fernald (FDF) in conjunction with the DOE Site Office (DOE-FN) continued to realize significant benefits from implementation of new initiatives.

The Waste Storage Core Team completed the 60 day performance period required to validate the improvements made to their work management system. The performance period confirmed that the enhancements fully met the Project Manager's desired results. The improvements made to the work management system substantially reduced the time required to execute work and complete tasks. Quantification of the benefits from the enhancements developed through application of EWP principles is in progress.

The Waste Management & Technology organization has completed the 90 day performance period required to validate the improvements to the Task Order system. Additional enhancements were identified and incorporated into the work management system. For example, blanket task orders are written to utilize the skill of the worker for activities associated with routine work. Table 1 highlights the improvements in performance as a result of applying EWP principles to improve the Task Order Process: These results are tracked through the use of performance indicators.

Table 1

Parameter	***Time Required***	***Time After EWP Enhancements***	***Improvement***
1. Task Order Identification	21 Days	3 Days	86%
2. Task Order Planning, Review, and Approval	14 Days	4 Days	71%
3. Task Order Scheduling	3 Days	1 Days	66%
4. Task Order Waste Characterization	21 Days	7 Days	66%
5. Task Order Execution	65 Days	20 Days	70%
6. Task Order Closure	17 Days	5 Days	70%

As a result of the significant improvements in performance through use of EWP principles to enhance the Task Order System, the Waste Management and Technology Organization has requested that the Enhanced Work Planning Department facilitate the formation of three new core teams to evaluate and improve the current work process in Low Level Waste, Enriched and Restricted Waste, and Waste Characterization.

FDF has also completed the following activities to support long term monitoring of the effectiveness of EWP implementation. FDF established a

program to monitor the status of site-wide EWP implementation. FDF also developed performance indicators to provide core teams with a tool for measuring implementation of EWP. Finally, FDF provided input to the Ohio Field Office (DOE-OH) to support development of the DOE-OH EWP Steering Committee Charter and performance measures.

FDF completed two performance objective criteria (award fee) items linked to site-wide implementation of EWP. These items were completed ahead of schedule and were evaluated as 'Excellent' performance by DOE-FN.

First, the Fernald EWP Implementation Plan was reissued by the required completion date. Specific follow-on elements that were required and were successfully completed included (1) developing and issuing a document addressing site prioritization for participation in EWP, and (2) developing and issuing the schedule for implementation.

Secondly, the Fernald EWP Department facilitated the evaluation and improvement of the system employed by FDF, Waste Programs Management, to identify, plan, approve, control, and execute work relating to Task Orders as discussed above. As required, new or revised procedures were developed by the September deadline.

The Property Management and Facility Services Core Team has completed 30% of the baseline work flow diagram for the government property disposition process. This team has a membership of thirty personnel from many different organizations. Because of the size of the team and the complexity of the property disposition process, a method to modify the core team membership mix, based on the specific elements being evaluated, was developed. Key core team members determine which members are needed for each subsequent meeting. This dynamic membership process results in a net active core team membership of about eight to twelve personnel, therefore reducing the man-hours required to support the Property Disposition Enhanced Work Planning process by 36 to 44 man-hours (60% - 73%) per week.

The Building, Grounds, and Laundry Enhanced Work Planning Core Team has completed the identification of enhancements to their work management program that incorporate the five key elements of EWP. By addressing worker involvement, the team has provided immediate benefit to the work process by incorporating improvements to the planning and execution of work. Workers (Maintenance Laborers) are now involved with planning and reviewing work packages, resulting in a 30% reduction in re-work of packages.

The FDF EWP Department presented a series of orientation sessions to two separate organizations. Each workshop provided an overview of the EWP process and summarized key elements of the program. Workshops were presented to 25 members of the Program Support Division and to 18 members of the Oversight and Program Integration Division.

While attending the recent EWP Conference in Idaho Falls, Idaho, a

meeting was held with EWP representatives from DOE Headquarters, the Ohio Field Office (DOE-OH), and personnel from West Valley, Mound, and Fernald. It was determined that a DOE-OH EWP Steering Committee was needed to determine the path forward for the Ohio Field Office and the Ohio facilities. The DOE-OH EWP Steering Committee was formed shortly after returning and performance strategies were established to set the stage for current and future EWP implementation.

MOUND PLANT ENHANCED WORK PLANNING

An EWP implementation team helped initiate a project to apply EWP principles to Environmental Restoration projects and reduce the cycle time to generate, review, and approve project work plans, Health and Safety Plans (HASPs) and supporting documentation. The team, consisting of representatives from the DOE Miamisburg Environmental Management Project (DOE-MEMP), the Mound contractor, and an EH Technical Specialist, are providing the framework and direction for this initiative. A meeting was held with DOE-MEMP to finalize the proposal and discuss forming organizationally diverse teams (Mound contractor, DOE-MEMP, DOE-OH, and workers) and delegating the responsibility to the teams for the entire process. This approach will eliminate sequential review/rewrite/re-review cycles and promote a better interchange of ideas among the participants. The present system has resulted in making the HASP an almost overwhelming document for workers, thereby compromising its effectiveness. Two projects will be selected as "demonstration projects" to pilot this approach, collect lessons learned, and help define a path forward at the conclusion of these two projects. A specific proposal was presented to the Director, DOE-MEMP to ensure DOE-MEMP ownership and support for this approach to performing ER projects. The Director approved moving ahead and will work with DOE-OH to obtain their support and buy-in for delegation of authority to and participation on the pilot project teams as well as requesting participation of the site's new management and integration contractor on the pilots.

Due to a number of problems involving respiratory protection equipment, management at the Mound site conducted a meeting in August to elicit worker input and identify project issues. The meeting was successful in identifying issues and promoting meaningful discussions through involvement of that hourly personnel who work with the respiratory equipment on a daily basis. A team including hourly workers was established to follow-up on and to expand on the action items established in the initial meeting. An EWP facilitator helped conduct that meeting. The meeting and formation of a team including workers further demonstrates that the culture at Mound is changing toward "involving workers" as a critical element in solving problems. The implementation of EWP in conjunction with the Partnership Council, a forum with representation from the unions, DOE and the contractor, have been the key factors in changing the culture.

The execution of bubblesuit work scheduling is considered an area with potential for process improvement utilizing the EWP approach. In preparation for forming a team to pursue

improvements in scheduling, one-on-one interviews have been conducted with craft labor, a planner, a foreman, a project manager, a group manager, and a DOE-MEMP facility representative. Additional interviews are planned with radiological protection, decontamination, and operations personnel. A decision has been made to postpone a kickoff meeting for this team until after the Mound contract has been transitioned to the new site contractor in October.

The Mound Plant's EWP Coordinator continued to share information resulting from EWP activities with other DOE facilities during the 3rd quarter. A copy of the maintenance work control procedure was sent to the Pantex Plant in response to their interest in how "skill-of-the-craft" was implemented through the Mound work control system. Mound Plant personnel also provided a copy of the procedure that the Los Alamos National Laboratory recently implemented for "skill-of-the-craft" to the Pantex Plant to identify a slightly different approach that has proven to be equally effective. Another copy of the work control procedure was mailed to the Enterprise Advisory Services organization at DOE's Albuquerque Operations Office (DOE-AL) based on interest expressed in the Mound planning and control system following DOE-AL's attendance at the "skill-of-the-craft" breakout session at the recent Idaho Falls EWP Conference.

Improvements in work efficiency have resulted from applying EWP principles through the use of pocket cards to identify causes for work delays in the R/SW/T Buildings. This past February, the use of these cards indicated that "finding materials" for the job site was a primary cause for delays in performing work. A recent resurvey of pocket cards completed in June indicated more than a 50 percent improvement had been achieved with respect to job delays attributable to "finding materials." As a result of the use of these cards since February, management has taken specific actions to improve availability of materials such as consolidation of spare parts and relocating materials adjacent to the area planner.

The Mound Partnership Council recently endorsed application of EWP efforts to implement a new waste permit policy and procedure for the site. The Council, consisting of representatives from the Oil, Chemical and Atomic Workers (OCAW) Union, the Mound Guard Union, DOE-OH and DOE-MEMP as well as the site contractor, acknowledged that EWP played an important role in this initiative. The new site-wide waste permit system will assure that all wastes will be disposal ready when packaged and eliminate the generation of legacy wastes in the future.

In preparation for the implementation of the Waste Generator Permit Program at Mound in October, the Low-Level Waste Re-engineering Committee has continued to effectively use EWP as a tool in developing the necessary documentation. Through the involvement of multi-discipline personnel, the following documents have been completed: (1) an administrative policy governing the Waste Permit Program, (2) a new procedure for obtaining a waste permit, (3) a user guide for waste generators, (4) the charter for the waste permit steering committee, (5) performance indicators for self-assessment, and (6) training materials using the permit system. The preparation of these fundamental management tools

helps assure the effective start-up and transition to operation of the Mound Waste Permit Program.

A pilot project was completed to determine the efficacy of the Waste Permit Program in October. The Low Level Waste Re-engineering group used the new Waste Permit Program to prepare and deliver a waste permit to the tritium operations organization. This permit covered the handling and packaging of the Mound 301 waste stream that consists of personal protective equipment and step off pad wastes with less than 10,000 dpm tritium. The implementation plan for the new program has been developed, but is on hold pending input from the new Mound site contractor.

A recent training improvement project used EWP principles in evaluating the current condition of Mound's Training Program, determining the root cause for non-compliances with the Price Anderson Act Amendments, and developing corrective actions for recognized nonconformances. An EWP team was formed and determined that the root cause for these non-compliances was that line management did not follow existing procedures. Corrective actions included developing a flowchart for the training process, notifying line management of their responsibilities in this process, and developing a self-assessment checklist. The Training Department is revising its systems manual to include these changes. The project was successfully completed and the EWP team disbanded.♦

OAK RIDGE ENHANCED WORK PLANNING

Enhanced Work Planning (EWP) activities at Oak Ridge during the third quarter 1997 have continued to contribute to key improvements in the site's safety management systems and hazard analysis protocols at both the Y-12 Plant and the East Tennessee Technology Park (ETTP, formerly K-25 Site). In addition, the EWP program has resulted in increased work control efficiencies and cost savings. High level site commitments have been given to launch complementary EWP initiatives at Environmental Management Enrichment Facilities (EMEF) at Portsmouth and Paducah. Also, plans are underway to begin EWP-related efforts within additional organizations including Oak Ridge National Laboratory (ORNL), MK-Ferguson, and British Nuclear Fuels (BNFL).

Currently, EWP efforts at Oak Ridge are focusing on enhancing work control processes within Enriched Uranium Operations (EUO) and EMEF. Oak Ridge's EWP Program is also being used as an integral part of the site's strategies to fully adopt an Integrated Safety Management System as part of the site's response to DNFSB Recommendation 95-2. Furthermore, Oak Ridge EWP is heavily involved in the implementation of important work control improvements initiated following the Type A Accident Investigation of an on-the-job fatality that occurred in February 1997.

EWP played a key role in removing work control bottlenecks and improving efficiencies for maintenance job planning and execution within the EUO at Y-12. EUO, and, in particular, the successful restart of over 100 processes in the "9212 Complex", is the highest priority mission

of Y-12. Faced with predictions of potentially serious cost overruns and schedule delays, the Y-12 EWP team focused on improving critical maintenance work control processes. Based on EWP meetings where a cross section of disciplines involved in the restart work control processes was represented (e.g., craft, planners, customers, environmental, safety and health experts, etc.), a number of serious impediments to the effective completion of work at the 9212 Complex were identified. It became apparent that work control systems used elsewhere in the Y-12 Plant to process work were not being used within EUO because of the increased requirements of formality and rigor for all work associated with the restart operations. In particular, stringent requirements for tracking and closing out maintenance jobs while linking them to specific deficiency reports resulted in the elimination of the Y-12 "Standardized Work Package" system in the 9212 Restart effort. As a result, every maintenance job, regardless of relationship to other work in progress or simplicity, necessitated its own work request and detailed planning. This led to frustration among planners, workers, and managers and contributed to delays in the Restart project.

Within Y-12's EUO, the EWP team helped enhance and re-institute a 'Standing Work Package'/ 'Skill of the Craft' (SWP/SOC) process for the 9212 Resumption effort. This SWP/SOC process has already reaped significant dividends and is anticipated to result in an annual cost avoidance of approximately $545,000 without sacrificing needed organizational controls or safety. In summary, the cost avoidance calculated deals with two distinct but related enhancements:

- putting in place mechanisms whereby "skill-of-the-craft" is better defined and utilized to reduce unnecessary, non-value-added formal planning packages; and

- "binning" similar skill-of-the-craft maintenance jobs into "Standing Work Packages" to further reduce unnecessary paperwork and increase the amount of work that can be accomplished by an individual maintenance work request in lieu of multiple work requests.

The economy of scale associated with redefining "skill-of-the-craft" jobs and 'binning' low hazard/low complexity work (such as labeling, circuit tracing, re-lamping) has resulted in reducing the planning time to well under one quarter of what it would have otherwise taken. Planners can now devote more time to the unique details of higher hazard jobs instead of dwelling on assembling paperwork and obtaining signatures which were determined to provide little value to the worker or the overall work control process.

An additional annual cost avoidance of $476,000 has been predicted within EUO stemming from the reduction of the number of maintenance work packages requiring "full planning" to the less rigorous "minor maintenance" planning. The EWP team determined that many planning and work execution bottlenecks could be legitimately avoided if: (1) greater reliance could be placed on the skill-of-the-craft/supervisor, and (2) up-front communication between the planners and others involved could be improved

particularly industrial safety, configuration control, and craft.

Specifically, the Y-12 EWP Team piloted within the 9212 Restart operations an enhanced work control process in which new criteria were used for determining whether planners must generate a "fully planned package" versus allowing the job to be planned less rigorously as "minor maintenance". Rather than allow a job to be excluded from the "minor maintenance" category strictly on the basis that it requires some planning involvement of, for example, configuration control and/or industrial safety subject matter experts, these experts are now included in the planning process early to help determine the need for their subsequent involvement. Rather than automatically assuming that a configuration control or industrial safety issue will force the work to be "fully planned", planners and the appropriate subject matter experts work closely together up-front to determine the necessary extent of their involvement. Essentially, this enhancement now allows many configuration control and industrial safety issues to be addressed in a "minor maintenance" package rather than through only a "fully planned package".

This enhancement facilitates and streamlines the up-front communication of the planners and configuration control/industrial safety experts to help determine whether a "fully planned" work package really needs to be created. Following implementation this enhancement should cut down the number of "fully planned packages" in the 9212 Complex by about 60% (from about 70 fully planned packages per month to approximately 30).

Other EWP efforts at Oak Ridge continued to focus on three critically important elements of work control: (1) proper up-front analysis of job hazards; (2) incorporation of all necessary environmental, safety and health requirements, permits and plans into the job package, and (3) development and implementation of a single work control system for all work performed at ETTP.

The EWP team at ETTP completed Phase 1 development and began the programming of the work control system that will be included in the Work Planning & Permit Information System (WPPIS). WPPIS is a computerized tool used by work initiators, approvers, planners, ES&H organizations and craft labor to help identify hazards and requirements for a job or task being planned. It will replace and/or incorporate existing (automated and manual) work initiation and planning mechanisms and is designed to become the primary means by which work is initiated and planned at ETTP.

WPPIS will also provide a cost effective means to develop a documented, technically complete work package that incorporates all necessary health, safety and environmental plans, permits, and procedures. It will provide detailed guidance to the user about when a permit is to be used and how various fields within the permit should be completed. Also, WPPIS will be used to consistently apply the Oak Ridge site contractor's policies for determining the necessary degree of work control rigor, including planning levels, degree of supervision, and hazard assessment mechanisms using a defensible, graded, and risk-based approach.

The scheduled completion of Phase 1 activities will result in a working, user-friendly program that will be tested as a means to initiate and plan jobs within a number of organizational groups across ETTP including maintenance, engineering, operations, construction, and surveillance and maintenance. WPPIS is accessible through the Oak Ridge intranet and is now linked to a variety of site databases already on the intranet thereby enabling extensive information to be pulled into the system. Specifically, hyperlinks are being completed that will tie WPPIS to other established informational systems including the site's Maintenance Distribution/Job Request system, the facility/building manager database, the 'standardized work package' database, the equipment inventory database, the lessons learned database, the ETTP Facility Safety Documents and Hazards database, and the ETTP Radiation Work Permit system. WPPIS questions now point the user to over 60 permits and requirements covering the technical areas of:

- industrial hygiene
- environmental management
- industrial safety
- facility safety
- transportation safety
- utilities
- fire protection
- radiological control
- criticality safety
- waste management
- Davis-Bacon standards
- engineering

Phase 2 EWP activities have also just begun that will involve testing WPPIS usage among various groups at ETTP, training users, and enhancing links to the Maintenance Distribution/Job Request system. The system will also be used to automate the independent review of job packages through the site's Safe Work Planning Group (SWPG), and to automate the generation of the Daily Activities List that shows all work being performed on-site. The creation of SWPG, and the group's review of site-wide work plans fulfill corporate commitments made following a fatality that occurred in February 1997.

Other Phase 2 efforts include testing of WPPIS at other Oak Ridge facilities within selected Y-12 work control organizations. The incorporation of WPPIS into existing Y-12 hazard assessment protocols will increase consistency in the overall work control processes at the diverse Oak Ridge facilities.

Though there will be obvious improvements to the planning process in the area of safety, the enhanced work control system and its automated tools will also result in increased efficiency. Although all the expected savings from the incorporation of the new system have not yet been calculated, it has been estimated that the reduction in the administrative activity required to generate the daily activity list and provide information to the site's SWPG will result in an a 100% return on investment in less than two months.

A revision to the Y-12 Maintenance Planner's Guide was finalized that incorporates many enhancements stemming from EWP efforts. In particular, the Guide incorporates a "Work Control Matrix" that will be used for all

maintenance planning efforts across the site. The Work Control Matrix provides important guidance for determining the level of planning and work control based on a job's hazard and complexity.

Fundamentally, the Matrix helps:

- implement a more formalized and consistent system for analyzing hazards and identifying work control requirements;
- clarify roles and responsibilities of work requestors and authorizers to provide better insight into possible job or facility hazards at the start of the work identification/authorization process;
- determine the necessary planning rigor and work control for given jobs;
- establish clearer criteria for rejection and return of a work package/task by a 'down stream' organization involved in the work control process if it is found that the "up stream" organization has not adequately performed its duties (i.e., the information provided is unclear, inaccurate, inadequately documented, etc.).
- establish a multi-disciplinary "planning coordination center" meeting for jobs and tasks meeting certain hazard/complexity rankings;
- establish a rationale for when formal planning walkdowns should occur;
- tailor the formality of pre-job briefings and content based on a job's hazard and complexity.

The adoption of the Matrix by the Y-12 maintenance organization is a first step toward the ultimate goal of implementing the Matrix throughout all Oak Ridge organizations. While the implementing mechanisms for the Work Control Matrix concepts would be slightly different for the various organizations to which the Matrix will ultimately apply (e.g., EUO; Disassembly and Assembly; Quality Evaluation; Receipt, Storage and Shipment, EMEF), each organization's enhanced hazard assessment/work control system will be made consistent within the generic approach identified in the Matrix.♦

ROCKY FLATS ENHANCED WORK PLANNING

At the Rocky Flats Environmental Technology Site (RFETS), the Department of Energy - Rocky Flats Field Office (DOE-RFFO), Kaiser-Hill, Safe Sites of Colorado (SSOC) and Rocky Mountain Remediation Services (RMRS), with support from EH Technical Assistance personnel, are conducting a cooperative effort to improve worker safety and productivity in all phases of work planning and execution. The initiative emphasizes personnel involvement, ownership, efficiency, and productivity. During this period, RFETS personnel attended an EWP conference in Idaho Falls, Idaho; the Process Development Improvement Team (PDIT) continued evaluating the work control process; the EWP Team prepared to conduct an EWP workshop for Site management; automated job hazard

analysis software is being installed; a self-assessment process is in progress; and a training program is being developed for site management personnel in Integrated Safety Management.

The PDIT is an organizationally diverse, multi-disciplined team charged with developing improvements to the Site's work control planning process, evaluating suggestions from various work teams, and integrating Work Smart Standards into the work planning processes. The PDIT has completed evaluating the "as-is" process and is developing recommendations. Areas for potential improvement include: the work control procedure, all aspects of the work control process, engineering change process, procurement process, job hazard analysis, and more efficient job coordination and execution. Recommendations will be presented during the fall.

A workshop will be hosted this fall at RFETS to involve Site management in the details of the PDIT's recommendations, solicit feedback on these recommendations, and to enlist their support. Approval for implementation of the changes will be obtained from the newly formed Executive Committee. This Committee is comprised of senior line managers from the site's integrating contractor and major subcontractors. Their charter is to review and approve PDIT recommendations and assist in eliminating road blocks during the implementation process. Management support, involvement, and leadership is vital to the success of any site-wide change, especially significant process changes that affect several companies.

Another PDIT has completed selection of an automated job hazard analysis software tool for use at RFETS. The software, which was developed for the commercial industry by a private company, is presently being installed at the Site for initial testing and final customization. This tool appears to be user friendly and can be easily modified by RFETS personnel. After installation, there will be a 30 day test run prior to site-wide usage.

The PDIT continued working with various Working Teams throughout the plant site. The Working Teams continued to pilot enhancements developed by the PDIT prior to implementation across the plant site. The objective to date has been to pilot the Job Hazard Analysis (JHA) tool developed by the PDIT using key elements of EWP. At the end of this quarter, approximately 50-100 RFETS personnel were trained on the new JHA program software. Personnel trained on this JHA software included planners, subject matter experts, engineers, craft laborers, first line supervisors, and maintenance from the Integrating Contractor and major subcontractors.

A joint Work Team including personnel from two major subcontractors has been formed in Building 374 to process approximately 4500 gallons of laboratory liquid wastes. The Work Team is developing detailed work plans, schedules, and identifying resources. Job walkdowns have been conducted and procurement of materials to perform the jobs is underway. Actual installation of equipment and processing of the liquid wastes will commence in FY 1998.

A Work Team has been formed to plan the safe shutdown of the Building 444 cluster project. This EWP project will plan the safe shutdown configuration so the cluster buildings can be completely closed and require only a yearly inspection. A multi-disciplinary subteam developed the task list for the required project activities, providing the sequencing for tasks to be performed, developing options for accomplishing the project, and identifying other issues that may require resolution. The Work Team is now developing detailed work plans, schedules, and identifying resources, and conducting job walkdowns.

Safe Sites of Colorado (SSOC), a major subcontractor at RFETS, has established three Work Teams focusing on Glovebox Benelux Removal in Building 771, Pencil Tank Removal in Building 776, and Building Deactivation of Building 886. Each of these teams are involved in planning individual projects. All of the teams have completed their current mission and successfully met established performance measures. The current focus within SSOC for FY 1998 will be Building 771 which is going through re-engineering and reorganization. All of the changes developed by the PDIT will be piloted in Building 771 prior to site-wide implementation.♦

LOS ALAMOS NATIONAL LABORATORY

During the previous quarter, Los Alamos National Laboratory (LANL) implemented its new EWP Laboratory Implementing Requirement (LIR) Document, a top level procedure, at its 20 Facility Maintenance Units (FMUs). During the second quarter, LANL assessed its performance, and DOE's Albuquerque Operations Office (DOE-AL) and Los Alamos Area Office (DOE-LAAO) were preparing to jointly assess the EWP performance.

The LIR addresses the life cycle of a work package from work request to closure. It discusses work planning teams, use of a graded approach, and an extensive process for use of Skill-of-the-Craft. It breaks the work process into discrete elements that are individually defined and characterized. For example, criteria are provided for defining emergency, urgent, and routine work requests. Since the LIR is a performance specification, it provides flexibility in how work is requested and planned, as long as the required results are achieved. Work may be requested verbally, electronically, or in writing.

The LANL self-assessments of EWP are frequent mini-reviews that involve sampling the finished packages and interviewing participants in the work efforts. The EWP self-assessments involve examining work packages to verify that LIR elements are present. These assessments did not evaluate the quality of implementation. Based on results from the EWP self-assessments, LANL concluded that: (1) the LIR excludes laboratory research work such as experiment setup and take-down and lab process lines, which is an important area of work management at LANL; (2) wide variation exists in implementation across the site; and (3) the hazard analysis process was not well-developed or implemented. Findings were entered into the laboratory's action tracking system and into individual program division tracking systems.

LANL senior management was briefed on the status of implementation, including major findings and concerns. A DOE team headed by DOE-LAAO, and coordinated by DOE-AL's Performance Assurance Division assessed the work control program against five core Integrated Safety Management functions. The team's report declared that although the new work control system "...greatly improves on the old program, the current status does not fulfill its intended function." The assessment findings include the following items: (1) the LIR is missing the graded approach process it was to have in place; (2) work controls were inconsistently and inadequately implemented; (3) the Activity Hazard Analysis process is too generic, inconsistently executed, and lacking clear guidance on its use; and (4) the feedback and improvement process for work controls is not adequate. Most noteworthy was that the DOE assessment contradicted LANL's premise that work could be processed via numerous approaches and still achieve consistent results. The DOE assessment found and LANL now concurs, that a consistent format and procedure needs to be applied to minimize undesired variation in the work packages. This issue will be addressed with the implementation of the computer-based work management system in early 1998.

LANL is planning on making a formal response to the DOE team's findings, but corrective actions have already been initiated. The FSS and ESH Divisions are collaborating more closely, through the site's EWP Core Team, to resolve disparities and integration problems between the hazard analysis and control policy and the Work Controls LIR. The ESH Division is providing additional resources to the site EWP Core Team to address the issues. FSS is finalizing a grading process for inclusion into the LIR that will be immediately implemented. Plans for centralizing and unifying the formats and processes for work packages are being incorporated into the CMMS project plan. Execution of the central and uniform processes, however, will be contingent on the completion of the project to comprehensively improve facilities management.

The work control process improvement effort at LANL has been combined with the larger facilities management project to institute an automated and comprehensive work management system. The Computerized Maintenance Management System (the system actually covers all of facilities work management at LANL, including new construction) is a $2.1 million undertaking that will unify all aspects of facilities work, including the elements of EWP, such as team preparation work packages and Skill-of-Craft. At the end of the quarter, the CMMS core team plans to submit a project plan that calls for full implementation by February 1998.

Largely in response to the DOE assessment of work controls, the Chemical and Metallurgy Research Facility (CMR) voluntarily stood down operations to improve performance in work controls and hazards analysis. The program director has directly assumed the transition responsibility for safe resumption, which could be as soon as mid-October. A potentially serious setback occurred for the EWP and CMMS projects in the third quarter when funding was suddenly

diverted for a higher priority item announced with the award of the new University of California Contract. FSS is meeting with the Laboratory Operating Group and with the responsible program managers to find a solution. LANL is earnestly working to find alternative funding and expresses 80% confidence at losing only a month on the project time line.

The LANL operating contract was renewed for five more years. The contract includes explicit requirements to implement Integrated Safety Management Systems. Since the LANL Integrated Safety Management Implementation plan specifically invokes EWP, LANL has become the first DOE National Laboratory to have a clear business incentive to utilize EWP in performance of work.♦

PANTEX PLANT ENHANCED WORK PLANNING

The Pantex Plant continued to expand application of Enhanced Work Planning (EWP) principles during the third quarter of 1997. Pantex's original EWP pilot project has been completed and new EWP teams continue to be formed to address other needs. EWP at Pantex has been a bottoms-up movement to increase the efficiency of planning and executing work, minimize administrative costs and delays, and increase safety. The process continues to be advanced by Pantex middle management and workers who have experienced the benefits of this new model for planning and performing work and who choose to use the process for subsequent work.

The Pantex Work Control Team is a newly formed EWP team that will review the overall work control system to identify opportunities to more fully capitalize on the capabilities of the FMI system to improve work throughput, decrease backlogs, and improve the quality of job plans by allowing shop planners more time in the field. This Team has established goals of improving work throughput by 25% and decreasing the backlog by 10% within selected craft areas. The Team will initially promote the expansion of Skill-of-the-Craft and the automation of certain clerical functions.

Early in 1997, Pantex formed five EWP sub-teams to address maintenance related down-time issues in 12-84, a key production facility at Pantex. These five sub-teams focused their efforts on: radiation monitor and alarm reliability, fire protection systems, HVAC/humidity control systems, emergency generators and lighting, and preventative and predictive maintenance. The original goal of the teams was to reduce facility down time due to maintenance issues by at least 5%. However, by the end of the third quarter of 1997, they have succeeded in reducing maintenance events in 12-84 by 55% resulting in a cost savings/avoidance of nearly one million dollars in maintenance costs in addition to providing increased facility reliability/availability for production use. Facility down time hours charged to maintenance events in Building 12-84 have been reduced by 52% since the teams began their efforts.

Examples of specific improvements that contributed to the reduction in maintenance events in 12-84 include:

- Increased reliability of radiation warning systems through the use of long life fluorescent bulbs in place of incandescent bulbs. All green lights were replaced and the others are being replaced as they fail.

- Improved humidity control through the use of pre-coolers and replacement drums in the dehumidifiers. This has successfully eliminated humidity-related down time during periods when outside humidity would have previously pushed the humidity past acceptable operating limits.

- Combining the calibration cycle change-out for area radiation monitors with the preventative maintenance cycle thereby eliminating facility down time associated with one of the change-outs.

Two of the 12-84 teams will have completed their efforts at the end of the fiscal year 1997 and the others have identified additional goals for improvements to be made during fiscal year 1998 that will further reduce the number of maintenance events and facility down time. Maintenance personnel and facilities managers are also identifying the lessons learned in 12-84 and applying these concepts to other facilities.

The Waste Management and Waste Operations Departments at Pantex reorganized their efforts to work off legacy wastes as an EWP team during the third quarter. This team consists of members representing their respective organizations in the development and approval of associated procedures. The efforts of this team are expected to shorten the procedure approval time by approximately two weeks for each operation and ensure that the workoff effort progresses according to the schedule that the Pantex Plant has established with State and Federal oversight agencies.♦

SAVANNAH RIVER SITE (SRS) ENHANCED WORK PLANNING

At SRS, implementation of Enhanced Work Planning (EWP) continued in several facilities, culminating in NMSS receiving a DOE pollution prevention award for minimizing wastes during work planning. The Environmental Restoration Program sites initiated a subcontractor work planning effort with an ad-hoc team to address the interface between conduct of operations and work management. This effort also addresses the interface between the management and operating contractor and subcontractor personnel on environmental remediation projects.

However, efforts to integrate and manage SRS EWP activities on a site-wide basis did not achieve all applicable goals due to the transition to WSRC/DOE-SR site program leadership and coordination.

A maintenance re-engineering program has been on-going at SRS for the past 2 years. This re-engineering effort focuses on four primary areas: (1) implementation methods to streamline work control processes; (2) scope and standardized definitions for types and frequencies of maintenance activities; (3) site-wide material management and procurement; and (4) a computer maintenance management system for use in all site business areas. Recently, the head of this initiative has been designated as the SRS

EWP lead, resulting in increased management support and visibility.

Next quarter activities will focus on:

- Forming a site-wide EWP work management team to develop and implement the EWP process site-wide at SRS. This will include integrating and managing activities currently in process at NMSS and ER.

- Establishing mechanisms for baselining work control activities, identifying opportunities for enhancements, and formulating and implementing enhancements.

- Performing a gap analysis on the re-engineering activities and identifying areas for improvement and successes to be communicated to other DOE sites.

The "expert choice" model (developed during the EWP Containment Area Roll-back initiative) has been exported to EM-4 to optimize the Environmental Restoration 10-year budget planning. This model has been endorsed by DOE's Savannah River Operations Office (SR) to evaluate waste minimization improvements at SRS facilities and return 10% of the savings to the facilities as a performance based incentive.

The work of the NMSS Waste Minimization Work Planning Team was recently acknowledged by a Pollution Prevention Award at the DOE P2 Conference XIII in Atlanta.

NMSS management endorsed a plan to identify and implement additional EWP improvements relating to waste minimization. Key elements of this plan included:

1. Forming facility multi-disciplined teams composed primarily from hands-on workers. Each facility team would also include a management sponsor, a waste minimization expert, and an EH Technical Specialist.

2. Reviewing operations, maintenance and construction work planning practices. Benchmarking volumes and sources of waste streams. Identifying opportunities for improvement(s) in waste minimization at each facility.

3. Implementing changes and integrating with site-wide maintenance re-engineering program.

4. Developing a handbook for training and exporting "good practices" throughout the DOE complex.

5. Continuing to support Contaminated Area Rollbacks and other technical initiatives, such as Air Hose Reuse.

Subcontractor work planning has become an increasingly important issue due to the increased volume of environmental restoration work subcontracted at SRS. This work involves exposure to chemical and radiological hazards, as well as industrial safety hazards associated with construction activities at RCRA/CERCLA waste units.

An ad-hoc team was formed to address the conduct of operations and work management interface between the management and operating contractor and subcontractor personnel on environmental remediation projects. This group consists

of multi-disciplinary personnel from diverse organizations, including procurement, Industrial Hygiene, Radiological Controls, and Projects personnel from both the prime and subcontractor organizations. This group meets weekly to discuss division of responsibility, lines of communication, and work process control. The subcontractor team is evaluating subcontractor performance trends, occurrences at other DOE facilities, and field issues at SRS to achieve improvements in work process and communication in the subcontractor interface. The goal is to continuously improve safety performance through enhancements to conduct of operations, communications between prime and subcontractor management, and clarified roles and responsibilities.

During the next quarter, efforts will continue, including development of a Health and Safety Plan to be integrated into the ER work control processes including all site contractor work control processes. This plan will be developed based on EWP principles, follow state of the industry guidelines, and satisfy DOE requirements for hazardous waste operations.♦

RADIOLOGICAL PROTECTION TECHNICAL ASSISTANCE

HANFORD

During multiple visits to DOE-RL and Hanford Site contractors, EH Technical Specialists worked with line management and radiological staff to enhance line management responsibility for safety. Efforts focused on examining site response to events that had radiological consequences but were caused by factors having very little or nothing to do with radiological control. Historically, corrective actions for these kinds of events would be assigned to the radiological control organization when, in fact the real causes and contributing factors were associated with line management functions related to work planning, preparation, management and control, human performance, and worker capability. Line management is demonstrating an increasing sense of responsibility for radiological control issues. Both the EH Technical Specialists and the site's Facility Evaluation Board have observed that the radiological control program (e.g., structure, policies, procedures, guides, and technical bases) is generally sound.

At the Hanford 222-S Analytical Laboratory, an EH Technical Specialist continued providing guidance and coaching to individuals in waste management, and in particular, those involved with operations. The EH Technical Specialist participated in team building and improving communications during reorganization and establishing new assignments in key management positions. During this quarter, the waste management subcontractor has centralized most support functions.

The EH Technical Specialist emphasized preservation of improvements gained during the past several quarters as an essential element in ongoing reorganization and realignment of the 222-S Laboratory. In some cases, the improvements were connected to a departed individual's standards and

expectations, and effort is necessary to maintain and build on past improvements in the organization's basis for operations, procedures, and even culture. For example, changes in assignments for facility scheduling require continued attention by EH Technical Specialists to maintain progress achieved to date.

The Tank Waste Remediation System (TWRS) at Hanford continues to make improvements in Radiological Control. The major subcontractor for TWRS is taking an aggressive, integrated management approach since many problems relating to radiological protection are not really under the control of the Radiological Organization, but are directly related to line management performance. Within the Radiological Organization, an effort is in progress to recentralize the formerly separate radiological programs at East and West Tank Farms and bring in new managers.

EH Technical Specialists continued to monitor and participate in the Radiological Control Center of Expertise to augment and continue to improve the high quality of coordination demonstrated there. Through this forum, issues and improvements have been addressed at the site level and with the radiological control managers for DOE, the integrating contractor, the major subcontractors, and individual facilities.
At Bechtel Hanford and Pacific Northwest National Laboratories, EH Technical Specialists continued discussions regarding radiological performance and directions for continued improvement. Specific issues include posting of site Soil Contamination Areas, consistency of radiological training, and authorized limits for release of volumetrically contaminated material. Follow-up radiological engineering assistance is planned over the next few months.

EH Technical Specialists helped DOE-RL staff in developing and presenting radiological training for DOE technical employees. Development of a continuing training program has been slow, with the positive impact of initial training potentially being lost without follow-up reinforcement. Monthly radiological training for DOE Facility Representatives and periodic coaching for individual Facility Representatives is continuing.

ROCKY FLATS

At the Rocky Flats Environmental Technical Site (RFETS), a team of radiological experts led by the Radiological Control Manager, DOE-Idaho, conducted a follow-up visit to evaluate progress in upgrades of the Radiological Control Program. Significant progress was noted with much better cooperation and teamwork between the site's integrating contractor and the subcontractors. Management has clearly determined to do whatever is necessary to sustain and further the improvements. Vulnerabilities exist, however, most notably in the performance of work in extreme radiological and chemical environments. Management has commissioned a team to develop methodologies to reduce the risk to personnel working in these areas.

EH Technical Specialists also assisted the RFETS in improving conduct of operations, radiological control, and control of work, all of which support Integrated Safety Management.

A follow-on conduct of operations course has been scheduled to train trainers who will then teach additional conduct of operations courses. The courses will continue to be taught by newly qualified trainers from contractor and DOE organizations, with support from the EH Technical Specialists until the training of classroom presenters and field instructors in complete.

Other efforts to improve conduct of operations have focused on building operations. Through a series of one-on-one sessions with individual managers, EH Technical Specialists have worked to improve resource utilization through more rigorous scheduling. Emphasis has been on the startup of buildings and the daily start of work to support the overall initiatives of Integrated Safety Management.

EH Technical Specialists worked to enhance communications and coordination through their interactions with participants in work from the various contractors, and in particular for the support of central resources such as Radiological Control Technicians. During this quarter, cooperation among the parties has shown measurable progress as demonstrated through improved working relationships among the subcontractors and between the integrating contractor and the subcontractors.

Efforts to improve scheduling for a critical site resource, Radiological Control Technicians (RCTs), continued during this quarter. In several areas, the daily scheduling of each RCT by name and by job yielded increased effectiveness and reduced disruptions noted in the past. Reviews are underway to realign RCT coverage and personal protective equipment specified for each radiological work permit and for each routine radiological task.

An EH Technical Specialist provided assistance in establishing "Model Offices" for management and supervisory personnel of Rocky Mountain Remediation Services. These consist of bookshelves which contain three tiers of controlled documents: The first tier is for the manuals of the integrating contractor including site-level documents. The second tier is for the manuals of the sub-contractor, which support the first tier and provide direction for management of activities at the sub-contractor level. The third tier is for the procedures and plans for each activity, unit, facility, building, etc., including the operating procedures. The model offices provide the basis documents and manuals for operations, administration, and training.

The Office of Environment, Safety and Health (EH) continued to work with DOE Field Elements to strengthen self-assessment programs during the third quarter. Efforts were completed at four DOE sites to baseline current self-assessment programs and processes. Based on results from these baselining studies, sites identified various improvements to be tested. Work was initiated to test improvements aimed specifically at increasing worker involvement in self-assessment and to increase line management ownership of self-assessment programs and processes.

SELF-ASSESSMENT PILOT AT IDAHO

The DOE Idaho Operations Office (DOE-ID) and its management and operating contractor are conducting a pilot program on self-assessment. With the help of DOE-EH Technical Assistance Specialists, the contractor has developed a definition of self-assessment including essential elements, identified benefits of a positive self-assessment program, determined critical success factors for effective self-assessment, and prepared an implementation plan and schedule. The site definition of self-assessment is "an organization's self-administered process for continuous improvement by identifying opportunities and implementing changes for increased efficiency, effectiveness, and safety." The essential elements to be incorporated in the INEEL pilot are enhanced self-assessment process and procedures, information processes and tools, and development of a positive self-assessment environment. Contractor management with concurrence of DOE-ID has selected the Radioactive Waste Management Complex (RWMC) as the organization to conduct the pilot.

A process improvement team with a senior management champion from Waste Management Operations, a RWMC line management team leader, and representatives from RWMC operations and maintenance, Quality Assurance & Operations, Safety & Health (VPP), TRY Operations, SMC/TAN Operations, ICPP Operations, Environmental Affairs, and DOE-ID has developed the pilot program. The broad facility representation on the team will expedite the transition from the pilot to site-wide application. In addition, plans for self-assessment training, supervisor/foreman involvement, and employee participation to promote employee ownership of the program have been defined as part of the pilot demonstration. Funding for full implementation of the pilot in FY 98 has been obtained from the contractor's Compliance Re-engineering Board.

The Self-Assessment Pilot Team initially gathered information and review current (and former) programs at the INEEL and experience from companies in other industries that are considered to have effective self-assessment programs. The INEEL experience was obtained through an employee survey of a representative cross section of INEEL employees including line managers, supervisors, engineers, craftsmen, foremen, planners and others, and through discussions at team meetings. This AS-IS survey was included as part of the Enhanced Work Planning "AS-IS" Survey completed in July 1997. Results of the surveys were subsequently reviewed and discussed in the Self-Assessment Pilot Team meetings. Results from the surveys of INEEL employees indicated that the current self-assessment processes relate primarily to safety issues and auditing by others within the groups. Self-assessment as a part of an employee's personal continuous improvement process was not widely understood or applied. Safety issues were thought to be adequately addressed in a timely manner, but there was little awareness of other issues relevant to self-assessment such as suggestions for "cheaper, faster, better" work practices. Employee interviews uniformly identified the need for rewards, both cash and non-cash, for improvement suggestions. The application of the ICARE Lotus Notes module for safety concerns is generally well known to most employees, but many

employees have no direct access because of computer and software limitations.

The Self-Assessment Pilot Team concluded that diverse processes exist with varying degree of implementation at different INEEL facilities. Examples of current self-assessment processes or activities include an employee suggestion program, a safety concerns program, an improvement incentive program, a LIMITCO Excellence Award Program (LEAP), employee concerns program, post job reviews and critiques, line management assessment activities, and management walkthroughs. The team agreed that enhancements to some of these processes to ensure effective use might be warranted.

The Self-Assessment Pilot Team members reviewed the best practices proven to be successful in outside industries. Four sub-groups examined practices from eighteen separate companies identified by the DOE-EH benchmarking study of Industry Self-Assessment Processes and Programs to identify the most successful practices and guide the team in determining potential processes that could be successfully implemented at the INEEL.

As a result of this review and interactive discussions at the team meetings, the team decided to develop four processes to implement at RWMC. These processes include:

- Suggestion Program
- Employee/management Walk About Program
- Job Observation Program
- Post Activity Review Program

Separate sub teams are developing process steps and process flow charts for the activities of each of these new self-assessment process. System level processes flow charts show the major elements of the process and the input and outputs of the system. In addition, as part of the process design, the sub teams are performing a five-factor analysis to identify implementation barriers, system design needs, implementation plans, and information to build the business case for obtaining management approval.

The INEEL Self-Assessment pilot sub team working on the enhanced suggestion program is using the existing LMITCO Innovations and Improvements Process as the model for the Self-Assessment Suggestion Program. The Innovations and Improvements Process is administered by the Total Quality Management Department of the INEEL Institute to management recognize and reward LMITCO individuals and teams whose actions results in quantifiable cost savings. This process serves as a central collection and tracking system for savings in the areas of quality improvement, safety and pollution prevention. The limitations of this program are that it only applies to suggestions that result in measurable cost savings and that only non-represented LMITCO employees are eligible to participate.

The Suggestion Program will be expanded to capture and track suggestions that may not result in quantifiable cost savings. The team reviewed the Suggestion Programs from General Electric Jet Engines, Pennsylvania Power and Light, Simpson-

Tacoma, and Syntex Chemicals to obtain ideas of how other companies conducted successful suggestion programs including providing cash awards and non-monetary awards. The team has developed a process flow chart that includes steps for suggestion evaluation, implementation including verification, benefit analysis, and reward and recognition. An ICARE module will be developed to track all suggestions.

The INEEL Self-Assessment pilot sub team working on the Walk-About Program combined the existing LMITCO experience with ideas from programs at Air Products and Chemicals, ICF Kaiser, Scientific Ecology Group, and Duke Power Company to design the new walkabout Program. The goal of the program is to establish a self-assessment process that is an integral part of each employee's normal work. These self-assessments should be built into the operational routines of staff and managers and not rely solely on formal (scheduled, structured) assessments performed by subject matter experts. These walkabouts are intended to be performance-based rather than the historical compliance-oriented assessments. With the development and maturity of sound Walk-About Self-Assessment program, it is expected that the need for formal assessment should progressively diminish.

The Walk-About Self-Assessments would fall under the following categories:

- Scheduled assessments, topical in nature, completed by a mix of people
- Scheduled assessments performed at a prescribed frequency by managers
- Unscheduled assessments performed by management
- Unscheduled assessments performed by employees/managers as part of their everyday routine

Issues identified as a result of the manager or employee team walk-about process will be captured and tracked on a company wide system. Process flow charts for the Self-Assessment walkabout Team Process and the Manager Walkabout Process have been developed. ICARE modules will be used to track the suggestions.

The INEEL Self-Assessment pilot sub team working on a Job Observation Program combined the existing LMITCO experience with the VPP safety oriented job observation process and ideas from the program at OXYCHEM to design a new observation process. The goal of the Job Observation Process is to provide a structured method to involve all personnel in a work group or facility in on-going self-assessments by observing each other's work activities to improve safety, efficiency, and productivity. This process will recognize good practices, build teamwork, and improve work conditions and practices in a non-threatening environment. The intent of this floor level program is quite different from the function of audits and formal assessments.

The Job Observation Process defines roles and responsibilities for the observers and a Job Observation Coordinator who is the "champion" with responsibility to provide administrative support to keep the program running. The coordinator function is not part of the VPP observation process. A process flow chart has been developed and

is being finalized for implementation at the RWMC. ICARE modules will be used to track information and suggestions gathered through this process.

The INEEL Self-Assessment pilot sub team working on the Post Activity Review Program is using the combining LMITCO experience from the MCP 3003 Post-Job review process and ideas from programs at Occidental Chemicals, Foster Wheeler Environmental, 3M Company, Dow Chemical, and Sandia National Laboratory. The goal of the Post Activity Review Program is to ensure that a job or project review is performed at completion to identify areas for improvement, means or reducing eliminating delays, better ways to perform the job in the future, and improved means for communicating and tracking improvement suggestions. The expectation is that activity review would become common practice for most jobs as an integral part of each employee performing his/her job and not be applied only as a critique to a serious problem or incident. The potential for linking information from post activity reviews to the Systems, Structures, Components database in the Computerized Maintenance Management System will be considered.

The current Post-Job Review process has five criteria for use in determining when a formal documented review should be performed:

- A job was significantly delayed or postponed
- Performance of the work resulted in important lessons learned for improvements
- Work was exceptionally well executed and results should be applied in future
- The review will provide added value to work processes
- The activity was identified by the workers to need a post-job review

The design flow process for this activity will be completed for implementation as part of the RWMC pilot. Its is expected that this process may be very easy to apply as part of the pilot and will result in substantial benefits in identifying process improvements and supporting Self-Assessment and EWP goals.

In an effective Self-Assessment program, information management processes and tools are required to capture, communicate, evaluate, prioritize, and trend issues. These tools provide indicators to measure and reinforce performance to meet organizational objectives. The LMITCO Issues Communication and Resolution Environment (CARE) system is the INEEL system that performs this function and is an integral part of the Self-Assessment pilot process.

The INEEL self-assessment process improvement team has recommended enhancements to this electronic data management system to support self-assessment. The Self-Assessment Pilot Team will further define enhancements to ICARE to support self-assessment in the RWMC pilot. The ICARE system provides a user friendly means to identify improvement opportunities, communicate information with management, capture and track progress on actions, and

communicate results throughout the INEEL.

Improvements to the ICARE system to support the RWMC self-assessment pilot include changes to increase employee participation and management commitment.

The basic ICARE process performs the following functions:

- An employee identifies and electronically submits an issue
- The responsible person is notified by e-mail
- The issue is evaluated and actions are assigned
- Actions are completed and the issue is closed
- The system provides automatic reminders when due date are approaching and escalates information when actions are past due

Five separate ICARE modules will be completed and/or enhanced in support of the Self-Assessment pilot:

- Safety Concerns
- Environmental, Quality, and Operational Concerns
- Process Deficiencies
- Improvement Suggestions
- Work Group Commitment
- Observation Aids

The ICARE Safety Concerns and Process Deficiency modules are completed and fully functional. The Safety Concerns module was the first ICARE module released for use. This module provides a means for employees and management to identify and resolve hazardous conditions, unsafe acts, and near misses. Since the rollout in last quarter, employees have identified more than 150 issues per month. In August, the Process Deficiency Resolution module was put into service. This module provides for the identification and resolution of program and process deficiencies. The remaining modules are nearing completion and will be implemented with the RWMC pilot.♦

ROCKY MOUNTAIN REMEDIATION SERVICES SELF-ASSESSMENT

During the third quarter, the Rocky Flats Environmental Technology Site (RFETS) made significant gains in developing, deploying and piloting self-assessment tools and processes. A Process Development and Improvement Team (PDIT) with representatives from the site's integrating management contractor, all major subcontractors, and the DOE Rocky Flats Field Office (DOE-RFFO), established a self-assessment program called C.I.T.Y. (Continuous Improvement Through You). C.I.T.Y., as designed by the PDIT, is an umbrella program that encompasses several tools and processes to promote worker involvement and line management ownership of self-assessment on the Site. C.I.T.Y. is being designed and implemented as part of the Integrated Safety Management System (ISMS) and

Enhanced Work Planning (EWP) currently being implemented at the Site.

During this period, the PDIT established a number of tools tailored specifically for the culture at RFETS, including: suggestion boxes, bulletin boards, job observation cards, lunch box meetings, hot lines, and management walkdowns. These tools were derived from a comprehensive review by the team of the data that supported EH-5's comprehensive benchmarking study on self-assessment. After reviewing the data on private and commercial self-assessment techniques, a subjective comparison was made to determine if any existing systems on the Site currently supported the precepts evidenced in the benchmarking data. The PDIT concluded that the Site did not possess effective self-assessment tools and that programs previously established for self-assessment could not be easily restructured, since they lacked broad acceptance and were perceived to be ineffective or cumbersome.

Upon completing the review of the benchmark data, the PDIT, using a "Fuzzy Performance Indicator" process, determined that the Site would be most receptive to the introduction of a combined job observation and suggestion process. The PDIT agreed to develop this kind of a process as the first tool to be offered under the C.I.T.Y. program umbrella. Other tools, including management specific tools, will be developed and provided as resources become available to support development and implementation.

Members of the PDIT, including hourly employees, conducted focus groups with diverse groups of employees to determine the most effective means for communicating job observations and suggestions. The focus groups suggested that a card would provide an optimum mechanism for recording comments. Accordingly, the PDIT developed a job observation/suggestion card for communicating suggestions and observations between hourly employees, first line supervisors, and administrative control systems. However, the card is only a tool and the process for using, tracking, improving, correcting issues, and recording information is the focus of the effort.

To further define the process and provide a means of controlling, tracking, and using the information provided by the job observation/suggestion process, a subcommittee of the PDIT developed a process flow diagram that detailed interfaces, responsibilities, and the flow of information through the process. The flow diagram establishes the process as the impetus for conducting self-assessment, and the card is only a tool for conveying information.

Rocky Mountain Remediation Services (RMRS), a subcontractor at the site will test the new job observation/suggestion process. During the third quarter, the company developed a database to manage, track, and close suggestions, improvement opportunities, and deficiencies identified as a result of implementing the job/observation suggestion program. The database employs many features common to corrective action databases, including: tracking and trending features, identifier information, information on responsible parties, and milestones related to completion of planned actions. The efforts of the team, and more specifically the C.I.T.Y. program, were showcased during

a poster session at the National EWP Conference in Idaho.

The RFETS PDIT was asked to present an overview of the C.I.T.Y. programs to the Standards Process Action Team 15 (SPAT 15), that is evaluating assessment processes being employed throughout the DOE complex. In addition to this presentation, members of the C.I.T.Y. team, including hourly employees, also presented the program to the Assistant Secretary, Environmental Management.

Projects within RMRS related to maintenance, waste management, and Decontamination and Decommissioning were targeted as pilots of the job observation/suggestion process. Cards were made available to employees and middle management was informed of expectations and how to interface with the process. To date few cards have been received, which could indicate a reluctance to use the process. However, upon investigation, it appears that initial problems involving use of the process to date are related to the end of the fiscal year push to complete milestones and performance measures, and do not involve reluctance to use the system. During the start of the new fiscal year, it is anticipated that use of the job observation/suggestion process will increase.♦

BROOKHAVEN NATIONAL LABORATORY

Brookhaven National Laboratory (BNL) has continued, with a very aggressive schedule, to conduct its Self-Assessment Pilot Program under the technical assistance plan prepared between DOE/EH and BNL. The objectives of the plan are to: (1) develop a comprehensive description of all self-assessment activities currently performed at BNL, (2) enhance current self-assessment activities, (3) expand worker involvement in the self-assessment process, and (4) communicate successful BNL program attributes to other DOE sites.

During this quarter, the Self-Assessment Improvement Team (SAIT) focused its efforts on baselining current self-assessment programs and processes at BNL, and identifying potential improvements or enhancements to these activities. The team includes a broad range of participants including DOE's Brookhaven Group line managers, workers, and environment, safety and health specialists. The team reviewed pertinent documentation such as the existing BNL Self-Assessment requirements, Tier II reports, Environment, Safety and Health Revitalization documents, and the Lab-wide Safety Stand-Down reports. Concurrent with the document review, a series of interviews were conducted to elicit BNL staff members' knowledge and opinions of self-assessment practices at BNL. The same considerations used in assembling the team members guided the selection of interviewees; that is, an effort was made to interview staff from a variety of BNL organizations. In most cases, two or more levels of the sampled organizations were represented. The team developed a set of questions to be used by the interviewer as a guide during the interview to ensure collection of consistent data.

During interviews with the various BNL organizations, the team identified a

number of noteworthy practices in place in different organizational units. Examples include:

(1) The National Synchrotron Light Source produces a quarterly newsletter that includes a column dedicated to communicating worthwhile developments and practices in environment, safety and health.

(2) The Department of Applied Sciences has developed and regularly updates signs posted at sinks in laboratories. The "Think of the Sink" initiative helps workers remember what chemicals can be allowed in sinks, acceptable concentrations and items specifically to be excluded from the sinks.

(3) The Alternating Gradient Synchrotron conducts customer focus meetings with users of their beam lines to discuss good and bad results and goals for the next week.

During the analysis of the results from the interviews, the SAIT identified a number of common themes relevant to self-assessment and environment, safety and health (ES&H) in general. These themes were also evident from the review of the documents. Based on these common themes, and with an understanding of BNL's existing Self-Assessment Program, the team developed recommendations for improvements to self-assessment, that are detailed in their report, "Baseline Report of the Self-Assessment Improvement Team at Brookhaven National Laboratory," dated September 25, 1997.

The team's two key issues addressed as part of the team's recommendations are:

(1) BNL needs to achieve a better balance between informal and formal activities. Informal communication processes were found to be working well; however, BNL needs to enhance what is done informally by adding some formality of the processes.

(2) BNL should avoid a top-down approach (to impose self-assessment) by management because this approach could hinder initiatives promoting continuous improvement. The recommendations in the report are not meant to be imposed from above and are not necessarily meant to be standardized across the entire BNL site. The team emphasized that the worker should have direct input in designing implementation plans for any self-assessment recommendations, so that a customized plan for each Department/Division can be realized.

Specific recommendations to improve self-assessment processes included:

- Increased employee involvement in self-assessment activities.
- Development and delivery of self-assessment training including general training/overview session for all employees.
- Customer focus meetings to obtain user feedback.

- Employee Suggestion and/or Concern Program with Feedback.
- Scheduled "Safety Days" stand-downs with management representation and involvement.
- Budgeting for safety including time and money.
- Employee empowerment.

Following review by BNL management, implementation plans will be developed for the improvements that management chooses to implement. In addition, enhancements will be made to the overall BNL Self-Assessment program and a schedule for implementation of these improvements will be developed.♦

BROOKHAVEN OPERATIONAL AWARENESS

During the third quarter, the DOE Brookhaven Group (DOE-BHG) continued to develop a new Operational Awareness (OA) Program with support from the EH Technical Assistance Program. Efforts to define long term needs were completed and a detailed issue paper providing a situation analysis and recommendations regarding the program was prepared. DOE-BHG, working with EH Technical Specialists, developed draft documentation establishing the vision for the office and the overall scope of the Operations Awareness Program. Based on review of these documents, the DOE-BHG management team decided to initially focus on developing and implementing a new site-wide Facility Representative Program to dramatically increase DOE-BHG presence in important facilities at Brookhaven National Laboratory (BNL).

The initial focus of the effort was to define the framework for a comprehensive OA program so that DOE-BHG could build an effective partnership with BNL to achieve the diverse missions assigned to the laboratory. EH Technical Specialists conducted a series of interviews with a cross section of DOE-BHG staff to collect information on current and past activities, expectations, and issues that affect OA activities. In addition, information on site hazards was reviewed to establish a baseline on facilities, projects, and routine activities where OA activities are essential for monitoring contractor performance.

Based on review of the data collected, an issue analysis paper on OA was prepared. The paper discussed goals for an effective program, roles and responsibilities for key positions and organizations within DOE-BHG, typical OA activities, and program implementation issues such as staffing, organization, infrastructure, and continuous improvement. The paper also discussed potential performance measures and communications within DOE-BHG, with BNL, and with DOE Headquarters. Detailed recommendations were included on steps that should be undertaken to fully develop and implement an effective program.

The DOE-BHG management team reviewed the issue paper and largely agreed to implement its recommendations. With continuing support from an EH Technical Specialist, management developed a vision statement for DOE-BHG to define the office's values and highest level goals. A draft program plan for the Operational Awareness Program

was also prepared based on the issue analysis paper to clearly define management's expectations, provide a basis ensuring accountability, and to set the stage for developing detailed implementing administrative instructions. The program plan was developed using the Operational Awareness Guide prepared by the DOE Berkeley Site Office (DOE-BSO) as a key input. In addition, the draft program plan was shared with DOE-BSO to promote cross pollination of effective approaches to OA.

During a planning meeting in August, the DOE-BHG management team evaluated a range of options regarding implementation of the Operational Awareness Program. Given the level of special activities that are continuing to consume the office's limited technical resources, management agreed that the best near term strategy would be to focus on implementing one key element in the overall program, specifically an enhanced Facility Representative Program. The DOE-BHG management team agreed that the Facility Representatives play a vital role in operational awareness and serve as the office's primary "eyes and ears" in routine interactions with BNL. Accordingly, management decided to immediately commit additional personnel to the facility representative program, develop rigorous training and qualification processes, and establish necessary supporting instructions and implementation documents.

A meeting was held with interested DOE-BHG staff members to discuss the restructured facility representative program and invite interested candidates to volunteer for the program. A new draft position description was prepared based on position descriptions for DOE facility representatives at the Oak Ridge National Laboratory, Sandia National Laboratories, and Lawrence Livermore National Laboratory. In addition, a draft generic qualification card for DOE-BHG facility representatives has been prepared. The DOE-BHG management team is now evaluating personnel who have volunteered for the new program against current project and program needs to develop an overall interim strategy.

Efforts will continue during the next quarter to develop and implement the Operational Awareness Program. Planned activities include drafting administrative instructions, surveillance guides, and performance assessment guides; establishing a formal training and qualification program for new DOE-BHG facility representatives and; developing infrastructure such as tracking systems, report formats, performance measurements, and communication tools.♦

LAWRENCE BERKELEY NATIONAL LABORATORY (LBNL) SELF-ASSESSMENT

Significant progress was made on self-assessment technical support initiatives at Lawrence Berkeley National Laboratory (LBNL) in the third quarter. The initial baseline review of current self-assessment activities performed by LBNL has been completed and opportunities for improvement have been identified. Specific recommendations will be presented to a site Self-Assessment Process Improvement Team in the fourth quarter.

In addition the DOE Berkeley Site Office (BSO) has made substantial progress in upgrading its Operational Awareness (OA)

program, including development; review and issuance of a draft OA guidance document.

A site Operational Awareness Process Improvement Team is providing leadership in the development and implementation of an enhanced Operational Awareness Program for DOE-BSO. The team includes personnel from DOE-BSO, DOE Oakland Operations Office and LBNL. The team's efforts to date have resulted in improvement in understanding program needs, goals, etc., from DOE-BSO and LBNL.

DOE-BSO is finalizing its draft OA guidance document. The guide will describe approaches for conducting OA activities, anticipated outcomes, and documentation that must be developed. The guide should be completed by the end of October, followed by training and implementation. Each DOE-BSO employee will develop an Operational Awareness Annual Plan, to define their proposed OA activities for the upcoming year after obtaining input from their LBNL counterpart(s). After the OA program has been implemented for a initial six month period the Operational Awareness Process Improvement Team will review and revise the OA guidance document as needed.

The initial baseline review of current self-assessment activities for all 14 divisions of LBNL has been completed. A draft review document has been prepared and routed to all divisions for review and comment, with comment incorporation to be completed by the end of October. The baseline review identified approximately 20 division initiatives, i.e., methods developed at the division level that have proved to be value-added tools for self-assessment activities. A summary presentation on results from the self-assessment baseline review will be made to all divisions in the fourth quarter along with descriptions of division initiatives that could be adopted by other divisions. These division initiatives include:

Bi-weekly Walkthroughs- The division safety coordinator walks laboratory areas on a bi-weekly basis. Any observations generated during these walkthroughs are shared with the laboratory manager, researchers, or other appropriate staff, immediately.

Corrective Action Field Identification and Closure- LBNL Self-Assessment Database (LSAD) deficiencies are identified in the field with a violation tag. The tag is removed by the division safety coordinator after corrective action has been verified. This tag also serves as a visual reminder to personnel responsible for closure of the corrective action.

Cross Shop Inspections- The division "cross shop" self-assessment process is used to inspect areas on a quarterly basis. Craft personnel from a shop participate in self-assessment activities for other shops to provide a "fresh look" at conditions and to enhance their awareness of potential issues or improvement opportunities.

Development of Division Checklists- The safety coordinator for the 88-inch Cyclotron has developed an innovative method to prepare division specific self-assessment checklists. Initial criteria was pulled down from LSAD and reviewed for applicability to the division. The modified set of LSAD criteria are then reviewed by

the division ES&H Committee for applicability and to identify any important "gaps." The final draft checklist is "validated" by having a member of the EH&S.

Electronic Logbook- Some safety coordinators use an informal electronic logbook (maintained on a PC) to help plan self-assessment activities in addition to noting areas where additional review or assistance may be warranted.

Program Safety Representative- A program safety representative has been assigned for each research group or facility. This individual conducts day-to-day safety activities and also serves as the point of contact to coordinate safety issues with the division safety coordinator.

Project Safety Questionnaire- A questionnaire is used by the project leader and/or laboratory manager for new projects, when hazards change or new hazards are introduced to identify types of hazards, specify required personal protection equipment, define training requirements, and create a project safety basis document. The questionnaires are also reviewed on an annual basis for ongoing projects. Questionnaires are reviewed by the Division Safety Coordinator and the Division Safety Committee. The questionnaire also identifies required training.

QUEST- The Quality Assurance/Improvement and Environment, Safety and Health through Self-Assessment and Teamwork (QUEST) program was developed so that division personnel could assess and act upon quality assurance or ES&H concerns as part of their day-to-day activities. All division personnel, and LBNL personnel on loan to the division, are required to participate in a QUEST team. QUEST teams operate on six two-month cycles per year with all division space reviewed throughout the year. While QUEST teams must address certain LSAD criteria, the teams are also encouraged to include topics unique to their work activities. This program also provides a method for identifying ways to improve quality or work processes.

Self-Assessment Inspection Reference Manual- This small manual (approximately three by five inches) contains LSAD criteria grouped by discipline, or functional, area. Examples of discipline areas include electrical and chemical safety. In addition to the evaluation criteria, the manual contains the LSAD reference number and EH&S Division point(s) of contact. The manual is used in performing walkdowns and is viewed as a very useful tool.

Team Assessments- Team assessments at the division level are accomplished through a series of formal inspections by line personnel responsible for completing work activities using detailed checklists. These assessments are conducted in accordance with a pre-determined schedule from January through July of each year. Each assessment team is formed from a "pool" of 36 personnel (divided into six discipline areas) from different departments within the division. Deficiencies noted during the team assessments are entered in the LSAD database and tracked until closure.

Based on analysis of data collected during the baseline review, two opportunities for improvement were identified. These opportunities for improvement will be presented to the Self-Assessment Process Improvement Team in October for consideration. The two opportunities for improvement are:

Employee Involvement- All divisions should strive to include the majority of division employees in self-assessment activities. Having only a selected few personnel conducting self-assessment activities limits the ability of other personnel to learn the process and overlooks the value of personnel "on the floor" contributing to evaluations of organizational performance.

Continuous Improvement- Self-assessment should not be limited to identification and correction of deficiencies. To realize maximum benefit from employee involvement in self-assessment program activities, the Laboratory should establish clearly defined goals and objectives to identify continuous improvement opportunities. While continuous improvement is discussed in site documents, providing clear expectations on meeting goals and objectives should significantly enhance this process.

To learn how feedback from self-assessment reports prepared by each division at LBNL is communicated to workers and laboratory management, a preliminary review of the self-assessment validation process was conducted. While the majority of validation activities are meeting laboratory expectations, the laboratory is considering changes in current methods to align validation activities to support LBNL implementation of Integrated Safety Management Systems. An LBNL Review Committee will be formed to analyze results from self-assessment activities, identify institutional issues, and formulate subsequent working groups, recommendations, etc.

To assist employee involvement and continuous improvement at the division level, LBNL is developing a site-wide Continuous Improvement Suggestion (CIS) program. The CIS program will incorporate attributes of employee suggestion programs currently being tested at the Rocky Flats Environmental Technology Site and the Idaho National Engineering and Environmental Laboratory. While the CIS effort is still in the planning stages, the following elements will be incorporated:

Characterization of Suggestion- Each CIS submitted will describe the current process, proposed changes to the process and benefits realized from implementing the suggestion.

Cost Savings- Each CIS submitted will include an estimate of the cost savings (or cost avoidance) from implementing the suggestion. These estimates have been used at other DOE sites with good success.

Feedback- The CIS program will include feedback mechanisms to ensure that the author of the CIS is apprised of the review status and disposition of the suggestion.

Employee Participation- Initial goals are still to be defined during program development with an ultimate goal of 100% participation of all Laboratory employees.♦

EWP NATIONAL CONFERENCE BREAKOUT SESSIONS

LINE MANAGEMENT OWNERSHIP

This session discussed the role of line management and how it contributed to the success of EWP. Testimony by functional line managers who are responsible for activities undergoing EWP explored the "real" and the "ideal" roles and responsibilities of the core team, along with how their functional roles and responsibilities have changed as a result of EWP.

Summary of Issues Addressed

Discussions were held on the importance of line management sponsorship of the EWP process. It was pointed out that this, in many cases, is the first step toward establishing the fact that the support organizations, Health and Safety, Quality Assurance, Rad Protection, Engineering, Industrial Hygiene, and Environmental Compliance serve the line. It was identified that EWP should focus on the work and specifically the work management system. This created significant discussion on the fact that at many sites the requirements to do the work tend to be the focal point while the actual work is secondary. Ways to refocus this issue were discussed employing EWP as a catalyst to reinforce the idea that without the work there would be no need for the requirements.

Impressive testimonies by the panel of line managers were given which presented:

- How responsibilities are established in the Core Team process
  - Assume control of the core team
  - Keep the team focussed, energetic, committed, and goal oriented

- How the work management system changed as a result of EWP
  - First, baseline current work practices
  - Then integrate the efficiencies identified
  - Assess and review new work process

- How their roles in the work management system changed
  - More routine, less crisis-based
  - More standardized, less personality driven
  - Time reflective, less focused on administrative things
  - More time to be out in the field

- How they juggled time and resources to support the EWP process
  - Delegation and trust
  - Start up of EWP required 140% of time

- The net result of the EWP process
  - Saved time, gained efficiency
  - Increased morale of organization
  - Increased ownership of work

- Roles and responsibilities of the Core Team members
  - Active and unencumbered participation from all organizations
  - No rice bowls

How to engage middle and upper management was discussed. Obtaining the

buy-in and genuine engagement of management is a critical, albeit difficult, task. Several methods to resolve this were presented by the panel and members of the audience. The general agreement was that middle and upper management understood results. Therefore, it was best to present the results of an EWP effort through the use of performance indicators that were directed toward the work or the work management program. This also pointed out another responsibility for the line manager which was to "baseline" the current work management system to measure how it is being improved through the use of the EWP process.

Another area of discussion was, "When does the EWP process end — or does it?" This was a lively and open discussion by all in attendance. The craft workers' representation was of the opinion that EWP should not end while the management representation felt that there is or should be an end. It was pointed out that the actual Core Team function can end, but the functional change is in the area of the work management system or in some cases in the establishment of a work management system. Any program is only as good as its implementation. A discussion was held on EWP not being just a maintenance-based activity, but a process that has a proven history to effect a lasting and improving change on any work management system.

Path Forward

Open issues:

- Disposition on the question of "When does EWP end"
- Promotion that EWP is more than a maintenance-based activity

Session Participants

Jim Trujillo, Enhanced Work Planning Program Manager, Fluor Daniel Fernald
Mike Becraft, Maintenance Manager, Fluor Daniel Fernald
Shane Stierhoff, Low Level Waste Manager, Fluor Daniel Fernald
Ron Mahan, Maintenance, EG&G Mound♦

ORGANIZATIONALLY DIVERSE TEAMS

This session focussed on the justification for using teams to plan the work, as well as the logistics and common-sense tactics for effectively using teams. While the idea of using organizationally diverse teams to plan and control the work is a good one, misuse or overuse is counterproductive to both safety and efficiency. The graded approach to team planning was discussed. Also addressed by participants were the immediate and long-term benefits gained from integrating organizationally diverse teams into the work management process. Emphasis was placed on the challenge of changing the prevailing culture at work sites when it comes to planning work activities.

Participants

Lou Tanner, Maintenance Manager, K-25, Lockheed Martin Energy Services
Peery V. Shaffer, Carpenter, OCAW, Lockheed Martin Energy Systems
Thomas W. Ayers, Maintenance Planner, Lockheed Martin Energy Systems♦

GRADED APPROACH TO WORK CONTROLS

This session highlighted how Integrated Safety Management (ISM) and EWP both encourage the application of risk- and complexity-based approaches to work management practices. The session discussed how sites around the DOE complex have used EWP principles to divide work into categories based on these criteria. Under this graded approach, the planning for work packages is commensurate with the hazards and requirements of the job.

Summary of Issues Addressed

Discussion and presentations emphasized the need for applying the graded approach in the work planning process. Also, the Hanford-developed automated Job Hazard Analysis (JHA) was made available to assist attendees elicit a graded approach methodology.

Many facilities use a matrix to help categorize the work based on risk and complexity. Using this approach, the work is scrutinized and then (generally) identified as routine, Skill-of-the-Craft (SOC), or non-routine work (virtually all agree that Skill-of-the-Craft can be an integral part of applying a graded approach to work planning).

Cost-saving benefits realized utilizing the graded approach include: (1) eliminating unnecessary paperwork and requirements from the work packages, and (2) implementing an appropriate planning rigor which is proportionate to the risk and complexity of the work packages. This eliminates unnecessary planning time.

As sites develop and refine existing graded approach tools, and enhancements, as well as screening methods, they will be propagated throughout the complex to further increase cost savings and planning efficiency.

Path Forward

Baseline the sites that currently have Skill-of-the-Craft tools and procedures in place.

Summarize the different procedures and look for consistency of approach.

Summarize the Defense Board position on use of a graded approach to work controls and add a summary of the unions positions.

Have the Steering Committee provide input on consistent adaptation of Skill-of-the-Craft procedures.

Participants

Jim Schildknecht, Work Control Manager, Fluor Daniel Hanford
Dave Drury, Apex Environmental, Inc.
Tom Gronewald, Maintenance Supervisor, K-Basins, Duke Engineers Hanford
Paul Hemsworthy, Work Control Manager, Waste Management Hanford Company
David Mason, Asbestos Manager, Lockheed Martin Idaho Technologies Company
Cheryl Salinas, Plutonium Finishing Plant, Babcock & Wilcox Hanford Company
Tony Jennings, Tank Farm Maintenance, Lockheed Martin Hanford Company♦

INSTITUTIONALIZED COMMUNICATION

One of the most significant EWP successes is the creation of a communication network between DOE sites, field offices, and Headquarters to share real-time lessons learned, tools, successes, and even failures. This session discussed how communication promotes the rapid growth and expansion of the other four key elements of EWP and provides an avenue for continuous improvement in the shortest time possible.

Summary of Issues Addressed

The importance of Line Management Ownership, Organizationally Diverse Teams, Graded Approach, Worker Involvement, was stressed in relation to the successful implementation of EWP principles.

However, the final key element — Institutionalized Communication — may be the most important. Although this element does not directly plan work, involve diverse teams, or ensure that line management owns the process — this element promotes the rapid growth and expansion of all of the other four key elements. It also provides for the most important ingredient to assure continuous improvement in the shortest time possible.

This is accomplished by people (within a site and across sites) sharing their experiences, successes, and shortcomings in their endeavor to fully implement effective Integrated Safety Management using the tenants of Enhanced Work Planning.

The breakout session identified the methods currently in place to establish, link, and maintain these lines of communication and provided insight on the following topics:

On the national level communications include:

- Conference calls
  - Sharing successes and shortcomings with other DOE sites.
  - Providing a springboard for further discussions and face to face meetings and exchanges between sites.
- EWP quarterly reports
  - Sharing successes and statuses at a national level.
- EWP National Conferences
  - Face to face communications to exchange techniques, procedures, and successes.
- Home page information
  - A compilation of products used by the site.
- Cross pollination document
  - A compilation of products and procedures developed by the various sites.

On the site level communications include:

- Newsletters
- Publicly posted performance metrics
- Intra-site sharing of experiences among different contractors
  - Daily meetings, calls with other contractors

- Sharing of ideas and needs in the improvement process

- Self assessments
  - The feedback mechanism that identifies weaknesses that result in the development of improvements.

- EWP reports (site) to management
  - Inform management in the actual successes and needs at the working level.

Path Forward

Provide an avenue for all products and tools to be added to the home page.

Decide future forums for conferences, workshops, and meetings

Participants

Steve Little, EWP Program Manager, Safe Sites of Colorado
Jim Thomson, EWP Program Manager, Rocky Mountain Remediation Services
Cecilia Rogers, KIRA, Inc.
Skipp Maas, Project Leader, Maintenance, Mason & Hanger
Ron Alexander, EH Technical Assistance

WORKER INVOLVEMENT

This breakout session discussed worker involvement from the unique perspectives of a first-line supervisor who is involved in a successful construction worker participation program, as well as the view of the same worker involvement program from an ES&H perspective. Worker involvement lessons learned were the basis of a group session that identified principal barriers to successful worker involvement and outlined practical remedies for enhancing employee participation.

Summary of Issues Addressed

The plenary panel session for worker involvement gave workers from the complex an opportunity to give personal perspectives on both the value of involvement and the barriers that tend to prevent effective engagement in the work planning process.

The breakout sessions engaged approximately 80 participants in two interactive sessions consisting of worker involvement perspectives from trades & crafts (Los Alamos & INEEL), health & safety (Los Alamos), and a practicing consultant in the field. The interactive working sessions focused primarily on barriers which prevent effective worker involvement and resulted in four themes or areas for attention to strengthen worker engagement.

- The process used to select which workers are given the opportunity to participate is extremely important in the eyes of the workforce. Often being viewed as the center piece for a credible relationship between labor and management, organizations tend to exclude important contributors and lose the potential for broad-based participation by overly restricting the input process.

- The lack of safety accountability with line management was cited as a continuing problem that precludes safety from being truly integrated into work processes. The perceived result is a mixed message to workers with regard to the time/attention

expectations for accomplishment of work versus the time/resource acceptable to dedicate to safety related issues.

- The audience claimed that too often management did not deal with the "whole" person, or attempt to tap the creative potential of workers engaged in the work to improve the process and product. The barrier described appeared to be centered on stereotypical supervisory relationships that simply reinforce chain of command or task and measure approaches wherein workers are expected to unwittingly follow instructions.

- The final barrier which constituted a theme in the discussions was perhaps the single most important: "How do we get people to be willing to engage." Workplace relationships, expectations and the culture which reinforce traditional ways of doing business are, perhaps, the most fundamental barrier. The most basic step toward successful worker involvement appears to be the facilitation of supervisory and collective bargaining interface with a message sufficiently powerful to alter strong organizational and individual behavior patterns, and rally organizations to a unified core value of employee involvement.

Path Forward

Collect and develop tools and lessons learned that authentically engage the workforce.

Develop performance indicators that measure progress and success.

Participants

John Martin, Director, Policy Assurance, Idaho Operations Office
Joe Frank, Work Control Project Leader, Los Alamos National Laboratory
Dave Duncan, President, PRISM, Inc.♦

PERFORMANCE INDICATORS (PIs)

Virtually all EWP programs already use PIs in some way, shape, or form. PIs are tools that are used both to meet goals and improve processes. This session offered the opportunity for sites to cross-pollinate and better integrate a PI program into EWP efforts. This session addressed self-assessment of EWP programs through PIs, and the use of PIs to measure subjective work management elements. It also examined how different sites use PIs to improve the work control process, and discussed the EWP DOE-HQ PIs and the EWP PI Toolbox.

Summary of Issues Addressed

Self-Assessment of EWP Programs Through Performance Indicators: Examples of performance indicators were presented that measure progress toward the EWP goals of: (1) worker participation in planning; (2) enhanced work execution; and (3) use of a "graded" approach. It was explained how these indicators can be used as a self assessment tool by management, craft, safety professionals, and others.

"Fuzzy" Performance Indicators: What "fuzzy" performance indicators are and how they should be employed by EWP

teams were presented. Emphasis was placed on using "fuzzy" performance indicators to measure subjective elements of management systems such as buy-in, accountability, and commitment. It was explained that these elements can be used to predict in advance how the more classic technical indicators will turn out. They are of fundamental importance if EWP programs are really going to provide lasting, beneficial change.

Case Studies About How an EWP Team Used PIs to Improve Work Control and Avoid $1 Million in Costs: An overview of two case studies was presented: the first illustrated how performance measures were used to dramatically improve the way work packages are being prepared by planning teams; the second case study summarized how cost avoidance dollars (an often-used performance indicator) were calculated stemming from "binning" related jobs and enhancing the use of "standing" maintenance work packages.

DOE-HQ Performance Indicators Dealing with EWP: EH-53 has provided an EWP performance indicator to EH-33 and Secretary Peña for which EWP sites will be asked to provide meaningful data throughout the year. An overview was provided of what this PI is and what is expected from the sites. Questions and comments were solicited from the group along with ideas for additional or different indicators.

EWP Performance Indicator Toolbox Initiative: A DOE-HQ initiative has been launched to help EWP teams take advantage of performance indicators as a means to advance EWP goals. A brief overview was provided of the initiative's objectives, approach, and status and input was solicited to help ensure the effort provides maximum value to the sites.

Path Forward

- A consensus was established that a better job should be done by those using performance indicators to "claim" success. (Participants admitted that claims of success can be met with skepticism and that better validation and documentation would help "sell" EWP and improve the transferring of successes from one site to another.) The Oak Ridge "Verification and Validation" sheets (which documented $1 million in cost avoidance and included signatures of selected managers and workers) were positively received.

  Suggested Action - Encourage other "successes" from around the complex to be documented and validated in a fashion similar to the Oak Ridge "Verification and Validation" forms. Consider using EH mentors on a short term basis to assist the sites in preparing these V&V sheets.

- Discussions concerning the EH EWP PI were vigorous. The current EH EWP PI, as well as examples of alternatives were not received well. Discussions centered on what exactly should we try to measure: "EWP acceptance/degree of implementation" versus "EWP effectiveness" — or some combination of both. In all cases, it was felt to be imperative that the PI must be defensible, carefully documented in writing, and able to be consistently applied across the Complex. Some suggested that those who would ultimately use and/or

benefit by the PI be interviewed to help arrive at the best PI to be established (e.g., Tara O'Toole, Joe Fitzgerald, Mike Hillman). The point was made that some programs may not clearly be able to distinguish EWP from other initiatives like the Integrated Safety Management System (ISMS) or Voluntary Protection Program (VPP), since attempts are being made to treat the complementary initiatives as seamlessly as possible. Nevertheless, these programs all may advance fundamental EWP tenets — how would a PI capture this? Similarly, questions were raised about how PIs should acknowledge the goal of eventual "closure" of formal EWP programs. What if a site's program is already "good" and EWP doesn't need to be launched or spread further — how would this be handled?

Many agreed that it is virtually impossible to establish a "baseline" of "organizations" or "sites" so as to measure the progress of EWP "spreading" toward 100%. Discussions about using assessment criteria similar to that employed for VPP, Baldridge, etc., to determine whether and to what extent EWP is "in place," was judged to have merit, although concerns were raised that this approach may be too complicated and smack of DOE-HQ "audit mentality." Should the EH PIs be a composite or "roll up" of indices or, instead, consist of specific individual measures (e.g., a "Dow Jones" PI versus an "individual stock" PI)? Many other ideas and suggestions were raised without a clear consensus for any.

Overall, it seemed as though the groups leaned toward advocating PIs which measured progress toward meeting goals of the EWP fundamental tenets (e.g., "worker involvement in planning") — regardless of whether "EWP" was mentioned by name. Also, a good PI for "worker involvement" for example, should ideally reflect how progress toward meeting this EWP tenet also advances the larger site goals, such as "reducing injury and illnesses," or "completing restoration within five years."

Site GET training was offered as a possible means of soliciting subjective PIs from a wide cross section of site employees, if feasible. This, combined with "harder" metrics (such as some of those already established by FCOG for maintenance), was considered optimal, if the specific details could be worked out.

Suggested Action - Frank Fitzpatrick with Robert Baumgardner should lead an effort to identify straw man PIs to be presented to EWP Steering Committee. Progress and ideas can be discussed on EWP Conference calls. Fitzpatrick will prepare a plan to proceed with this initiative. (Note: during the Breakout Sessions, a list of about 25 attendees was compiled who indicated that they had special interest in assisting in this effort. These individuals will be contacted for opinions, ideas, etc.)

- The PI "Toolbox" was strongly endorsed. It was felt that sites could indeed take advantage of materials

and tools that helped their EWP program take maximum advantage of PIs. The draft outline for the "Toolbox" was felt to be an acceptable starting point. The idea that EH Mentors help "introduce" the toolbox and set up PI programs at sites requesting such support was received favorably.

Suggested Action - Fitzpatrick will develop a more detailed outline and prepare a proposal for EH funding for preparation of written materials. Also, Fitzpatrick will pursue additional funding from Oak Ridge and other sites to provide on-site technical assistance for using the toolbox and compiling verified and validated successes.

Participants

Frank Fitzpatrick, Apex Environmental, Inc.
Steve Little, EWP Program Manager, Safe Sites of Colorado
Roy Stalliongs, Manager, Facility Maintenance Organization, Lockheed Martin Energy Systems
Charlie Barefoot, Millwright, Lockheed Martin Energy Systems
Dave Humphrey, EH Technical Support, DOE Headquarters
Dennis Walters, Pacific Northwest National Laboratories♦

SKILL-OF-THE-CRAFT (SOC)

This session examined the roots of the SOC movement. Participants discussed what SOC is, as well as what it is not. The session looked at the benefits and the potential pitfalls of the SOC approach. Since SOC is being applied at many sites across the complex, the session will look at the different screening methods employed at a variety of sites, how the sites are measuring its effectiveness, and what is and is not working around the DOE complex.

Summary of Issues Addressed

Jon Yonko reviewed the work control system implemented at Mound as the result of a EWP initiative. At the center of the Mound system, all maintenance work orders are screened by a multi-discipline review team to categorize the work orders into low, moderate, and high hazard rankings. The low hazard jobs are SOC work. Guidelines are published for the review teams as to what type jobs fall into the low, moderate, and high categories based on the complexities and risks involved. There are three area review teams at Mound which meet daily or every other day, depending on the volume of work orders. Periodic meetings are held with the review teams to ensure that they are consistent in how various types of work orders are categorized. In summary, the SOC system used at Mound utilizes a general definition for low hazard work with examples given, and an expert-based review team to categorize the work.

Cheryl Salinas discussed the graded approach system used at Hanford's Plutonium Finishing Plant to categorize repetitive and single use work orders. The repetitive work orders are broken into two categories — routine and general — with the "routine" being SOC without field work instructions. The "general" category is SOC for medium hazard repetitive work and requires that work instructions must be read prior to performing work. The single use work orders are broken into five

categories with SOC and no field instructions for the lowest category. The other four categories have increasing degrees of planning rigor, site supervision, and written instructions.

Two other contractors at Hanford utilize slightly different approaches to implementing SOC. Both methods are acceptable.

At K Basins, fourteen types of activities are authorized for SOC task assignment. A job hazard analysis matrix to match commonly identified hazards to the fourteen maintenance types is also provided. The current K Basins organization structure follows the traditional vertical alignment. PUREX organization structure reflects a project management and area team structure rather than the traditional vertical tree alignment. The makeup of the lower tier area teams provides a composite group who can authorize SOC work. PUREX has developed a computerized Job Hazard Analysis "tool" to match commonly identified hazards to the SOC activities.

Issues Discussed

- Worker Involvement

  The question was asked of Jon Yonks as to why workers were not on the review teams screening all the work orders. He answered that a few workers were tried on this team, but they asked to be removed; they weren't contributing much at that point of the work control system since more than 90% of the work orders are low hazard/SOC jobs. Instead, the workers were used to participate in the planning of the moderate and high hazard jobs. Their involvement on these higher category jobs has been a key element in better job planning and hazard recognition. Typically, the workers involved in the planning are the ones that will be assigned to the job.

- Is SOC Compromising Safety?

  The question was asked as to whether SOC or "routine maintenance" is compromising safety. The investigation into the K-25 fatality listed a number of safety systems or barriers that were compromised. They listed that part of the failure may be due to the assignment of "routine maintenance" to work that needs sound planning and control. In this incident, the work was hardly routine due to the amount of Personnel Protection Equipment (P.E.) requirements and the permits; however, the repetitiveness of the work itself may cause complacency in applying the proper rigor. The consensus of the breakout group was that SOC was a very useful tool to recognize the capabilities of the craftsmen and to effectively handle routine work. Like any other tool, however, the implementation of SOC must be properly done. SOC is not a substitute for proper recognition of hazards and correct use of safety permits.

Path Forward

The path forward for SOC is to continue to spread its use to other sites and subcontractors. The sharing of information in the breakout session on SOC implementation by various sites

served as an excellent vehicle to accomplish the wider use of this tool.

Participants

Jon Yonko, Maintenance Manager, EG&G Mound
Cheryl Salinas, Plutonium Finishing Plant, Babcock & Wilcox Hanford Company
Paul Hemsworthy, Waste Management Hanford Company
Lou Tanner, Maintenance Manager, K-25, Lockheed Martin Energy Services
John Wilcox, EWP Project Director, Fluor Daniel Fernald
Ernie Hamn, Manager, Configuration Management, Lockheed Martin Hanford Company♦

THE EWP TRAINING CURRICULUM

This session addressed how the new EWP curriculum can best be used depending on the needs of individual sites, facilities, and even individual core teams. Although the curriculum does provide a uniform introduction to the EWP process and trains those involved with work requesting, planning, and execution on EWP principles and implementation at DOE sites, it does not have to be used uniformly. The curriculum also provides an avenue for each site to add its own site-specific information. Additionally, the course provides a vehicle to share EWP-related information in order to develop consistent, defensible performance indicators and universally understood lessons learned.

Summary of Issues Addressed

The two major goals of the three-course EWP training are to provide a consistent introduction and view of EWP and to provide an avenue, within this consistent view, to tailor EWP information to meet site-specific needs. Many factors will contribute to how each site, each facility, and each core team utilizes this training. The EWP training curriculum was designed to cover the gamut of training needs which the sites may encounter. From a general briefing to top management, to an introduction to line workers, to a comprehensive training of a "working" core team, the training was designed to meet all of these needs. The developers (including the Steering Committee) are also available to assist the sites with any tailoring or modifications that the sites might need to most effectively utilize the basic training courses at individual sites. Whether the site is just beginning the EWP process or is well on the way to implementation, the training can meet the needs of the site's EWP program. The curriculum also provides a vehicle to share information concerning EWP, enabling development of consistent, defensible performance indicators and sharing of lessons learned.

The curriculum is designed for both DOE and contractor personnel. Consisting of three courses and a team training "toolbox," courses may be used separately or in combination for the various groups involved with EWP at DOE sites.

Courses One and Two, "Introduction to EWP" and "EWP Fundamentals," are video-based presentations designed to educate a broad audience on EWP and as an introduction to the implementation training.

Course Three — Implementation Training and the Team Training Toolbox are

designed to teach an EWP Core Team how to actually implement the EWP process at their site. The team works together throughout the 8-hour workshop on case studies and actual work processes that prepare them to enhance work processes at their own site. Valuable information about communication tools, team building, and lessons learned across the Complex is also shared.

Key elements of Course Three include: history, purpose, and scope of EWP; methods for overcoming resistance to change and gaining support for EWP; five key elements for successful implementation; sample steps for implementing EWP; work products, processes, and tools available from other facilities and how they can be used; documentation and communication of successes and failures complex wide; resource requirements and commitments needed for successful EWP implementation; and performance measures and return on investment as applied to EWP.

The Team Training Toolbox provides "hands-on" skills training in the effective formation and use of teams, a fundamental concept of EWP. Key elements of the course include the use of teams in the EWP process; the criteria for selecting the "right" team and mix of team members; the roles and responsibilities of EWP team members; the design of effective EWP teams given various work management processes; the management of a team to plan work efficiently; the use of team skills to brainstorm, build a consensus, and manage conflict; practical communication methods effective for the needs of EWP; and the use of team self-assessment to improve processes and share lessons learned.

Path Forward

- Ship three copies of EWP Training Curriculum to each participating EWP site.
- Send a copy of EWP Training Curriculum to sites interested in beginning the EWP process.
- Work with the sites on an as needed basis to effectively integrate the training into their EWP program.
- Develop a workshop that can be used in conjunction with Course Two — to introduce EWP to the site and effectively launch their effort.

Participants

Greg Cyronek, Training Development, Lockheed Martin Idaho Technologies Company
Linda Yost, Apex Environmental, Inc.

SUBCONTRACTOR

As the number of subcontractors new to DOE sites increases, performance indicators have revealed a steep acclimation learning curve. This has resulted in safety and productivity concerns. To combat this situation at Savannah River, an EWP subcontractor involvement team was formed. This team's objective is to facilitate the integration of new subcontractors and form a safe and efficient partnership. Lessons learned from this ongoing effort, as well as issues faced at other DOE sites with similar concerns, was discussed.

Summary of Issues Addressed

Background of SR - At Savannah River Site (SRS), various subcontracts are awarded by the Environmental Restoration (ER) contractor to conduct ER projects and technical support functions for those projects. The contractor hierarchy is as follows. Westinghouse Savannah River Company (WSRC) is the SRS managing and operating (M&O) contractor. Bechtel Savannah River, Inc. (BSRI) is the ER subcontractor to WSRC. Depending on the nature of the project lower tiered subcontractors for specific ER projects are competitively selected from either a prequalified group of subcontractors holding Basic Ordering Agreements (boas) or through open completion.

During the preparation and initial conduct of specific ER projects, it became apparent that various issues were not clearly defined through the solicitation process. Among others, these issues included (a) roles and responsibilities between the various contractor levels and organizations, (b) the applicability of various requirements to the subcontracts, and (c) the interfaces between contractor/subcontractor organizations.

For example, the roles, responsibilities and interfaces between RadCon organizations at the WSRC EDH&QA level, the BSRI ER level, and the subcontractor level were not established. Issues arose regarding (a) what type of technical support and oversight should be provided by each organization, and (b) which organization prepares, reviews, and/or approves various permits. Another example dealt with the applicability of the WSRC RadCon Manual and its implementing procedures.

It would be difficult to move forward with the projects until these issues were resolved; therefore, an EWP process was established to engage all interested parties, discuss and resolve the issues for current projects, and incorporate resolutions and lessons learned into future procurement activities.

An EWP Core Team was established consisting of Procurement, ER Project Management, WSRC and BSRI ES&H organizations, subcontractor management and field representatives. The Team has convened regular meetings to identify, discuss, and resolve subcontractor issues. As resolution is achieved, lessons learned and the precedent established are to be built into new procurement procedures to clarify the issues prior to project initiation.

EWP principles are applied when resolving identified issues, including line management ownership, teamwork, workforce involvement, communication and interfaces among all parties, and risk complexity-based approaches in establishing applicable requirements.

Significant Items of Interest During the EWP Workshop Presentation - Participants acknowledged the SRS ER issues surfaced in this presentation were common and repeated problems in subcontract efforts. Little, is ever done up-front to avoid the issues, however, participants agreed that the EWP process could be constructive in resolving these issues, which often result in work stoppages or delays, costly change orders, and general conflict between various parties. The constructive use of teamwork, worker involvement, and communication is important to resolve the issues in a timely and constructive manner.

There was a consensus that these issues should be resolved prior to procurement, or at least as part of a pre-bid process. The resolutions arrived at through this EWP effort should be institutionalized in the procurement and subcontract process. (This is SRS' intent.)

Bargaining unit workers raised the question as to how or whether they could get involved when the work is to be subcontracted, since they are essentially in a competitive situation regarding what work is to be conducted in-house versus subcontracted. Their input and on-site experience could be valuable in identifying and resolving potential issues or challenges before the project is subcontracted. It was discussed that if the work was already identified as work to be subcontracted, then the "competition" issue would not be in play. It was also discussed that an EWP approach may be useful in determining subcontracted versus in-house work when it is not already clearly delineated.

It was discussed that similar work, with the same or similar risk, should be conducted under the same or similar requirements regardless of whether it is conducted in-house or under subcontract. Many had the perception that subcontracted work often could be conducted under a risk-based approach, while the same or similar in-house work had greater requirements and therefore was potentially less productive and competitive. It is important that the risk and complexity-based approach be allowed for both in-house and subcontract work.

Risk- and complexity-based approaches were further discussed relative to subcontractors. Concern was raised that it is acceptable to talk about a graded approach, but often the DOE oversight organizations do not allow its application. If there is an event or even the slightest incident, everything seems to revert back to zero risk, layered requirements, and maximum controls, far above what is justified. It was discussed that the risk- and complexity-based approach is promoted as the proper approach from the DNFSB to DOE-HQ to DOE Operations Offices to contractors, but that it may take some time and effort to achieve a culture change throughout the ranks. The question was then raised: What can be done to effect this culture change? Clearly integrating the risk/complexity approach as policy into sitewide ISMS/EWP plans may be one way.

Discussion evolved to bigger picture subcontractor work, such as an entire site operated by an M&I with multiple major subcontractors. Hanford and Rocky Flats were used as examples where many of these same issues regarding requirements, roles and responsibilities, and interfaces were not previously determined. Development of ISMS to resolve these issues, establishment of integrated programs, and establishment of a common standard among subcontractors were being used to resolve these larger scale situations.

Path Forward

The SRS EWP Project for ER subcontractor efforts has demonstrated a constructive and effective process for resolving subcontract issues for specific projects and for the subcontract process, in general. This process should be shared throughout the complex, perhaps through

the generation of a brief case study or guidance document. One significant recommendation was that both in-house and subcontract work should allow a risk and complexity-based approach to enhance consistency, efficiency, productivity, and safety for all activities. Another recommendation proposed that a culture change throughout the ranks was needed to allow for effective application of risk and complexity-based approaches, and that ISMS/EWP efforts may be the vehicle for this change.

Participants

Dennis Trout, Apex Environmental, Inc.
Gary Gottfried, Apex Environmental, Inc.♦

EWP CLOSURE AND SELF-ASSESSMENT

The purpose of this session was to discuss how to perform a critical, comprehensive evaluation of the effectiveness of EWP implementation. Additionally, the session evaluated existing criteria from several sites used for determining when EWP is fully implemented and when efforts directed toward continuous improvement should be handed over to the site's self-assessment processes. The session also addressed the current efforts at several DOE sites to ready their self-assessment programs to pick up where EWP left off.

Summary of Issues Addressed

- ***Background***

Under the EWP process, step enhancements to the work management/control process are identified, implemented and institutionalized. Once the enhancements are in place, the EWP process ends and further improvements in the work control process are the responsibility of the site's self-assessment process.

The breakout session focused on addressing (1) the development of criteria on when to declare success and end the EWP process and, (2) self-assessment of the effectiveness of EWP enhancements.

- ***EWP Closure***

During this portion of the breakout session, ideas were exchanged on criteria that could be used to determine when "success" in EWP is declared and continuous improvement in the work control process is handed over to the self-assessment function. To date, only Fernald has declared success of EWP. Its determination of success was based solely upon the institutionalization of enhancements identified by its core team. Unfortunately, a management change soon after this declaration of success revealed a fundamental flaw in Fernald's single point criteria. The new maintenance manager opted not to accept the enhancements, and no process was in place to prevent the unilateral dismantlement of the enhancements. Subsequent to these actions, the facility received negative independent review by DOE of its work control process, which resulted the EWP process being brought back to recover the situation.

At Hanford, efforts have been under way for some time to develop a basic criterion for determining success. The Hanford criterion is based primarily upon individual site adherence to the five core principles of EWP. To receive a

declaration of success in the implementation of EWP at Hanford, a facility must demonstrate that it has in fact embraced the five tenants and is implementing recommended enhancements into the work control process. To date however, no facility at Hanford has met these criteria.

While the declaration of success at the individual facility level has been elusive, recognition of success at the site level has been awarded to two sites, Idaho and Fernald by EH. EH declared success at these sites based upon a strong Senior DOE and contractor line management support for EWP, the success of individual pilot efforts, the scope and breadth of efforts to bring all work activities under a common work control process, and the establishment of EWP champions at all levels of the organization.

As a follow up to this, EH established criteria upon which it will base future technical support. Under the EH criteria, sites are divided into three phases. Phase 3 describes successful EWP programs who have buy-in and ownership from senior DOE and contractor management, full active representation on the Steering Committee (i.e. representatives of site contractor and line DOE), an active EWP program is in the process of incorporating all five elements of EWP into the work management system, and a system in place to ensure continued implementation. This phase requires little EH involvement. Phase 2 has certain "pockets" of line DOE endorsements, an active DOE program in specific areas but struggling with sitewide implementation, and concrete progress toward full management sponsorship. Phase 2 sites require periodic EW involvement and support. They are also actively contributing their lessons learned to other EWP sites. Phase 1 represents sites that have recently embraced the idea of EWP and could benefit significantly from active EH involvement. The programs at these sites are new, unproven, and in the process of being piloted. There is limited upper management knowledge and only superficial buy-in from workers and management.

Path Forward

Since the point of the breakout session was to bring to the forefront the need to begin thinking about how to end EWP and declare success, no attempt was made to determine criteria for declaring success. However, all members of the Steering Committee agreed to begin identifying possible success criteria, with final success criteria to be established at the October Steering Committee meeting.

- ***Self-Assessment of EWP***

Over the past 2 years, EWP efforts across the Complex have come under increased scrutiny by independent oversight bodies. One of the most persistent negative issues raised by many about EWP is the lack of employee awareness of the tie in of enhancements to work control programs to the EWP process. In response to this issue, sites have made concerted efforts to communicate to workers the scope and breadth of EWP. However, with the redefinition of EWP, the EWP Steering Committee has re-thought the validity of this. It is now the position of the EWP Steering Committee that the source of the enhancements should be invisible to employees. Instead of concentrating efforts on promoting EWP, sites should focus on promoting the enhancement to

work control process brought about by EWP and insuring that the enhancements are working.

The need to insure that enhancements are working directly led conference participants into discussion of how best to conduct Self-Assessments of EWP in general, and specific enhancements in particular. Los Alamos, the only site to conduct a formal assessment of EWP implementation, described in detail their assessment process and its results. Based on follow-on conversations, all participants agreed that a formal, systematic process of self-assessment needs to be established to verify the effectiveness of EWP related enhancements to the site's work control process. A suggestion was made to create an outside assessment board, comprised of personnel responsible for EWP programs, which would administer an independent assessment of the effectiveness of the EWP effort at a site. Successful completion of an assessment by this board, breakout participants felt, should be a mandatory prerequisite prior to any site declaring "success" in EWP.

Path Forward

(1) All sites will begin developing site specific criteria for validating the effectiveness of EWP related enhancements, and upon development, begin actual validation. At the next EWP Steering Committee meeting, individual site criteria will be evaluated and Departmental criteria will be established.

(2) Before the next EWP Steering Committee meeting, the framework for an EWP evaluation board will be developed and circulated for review. Departmental assessment criteria will be based upon site specific assessment criteria.

Participants

B. Michael Hillman, Director, Office of Field Support, DOE Headquarters
Jim Schildknecht, Work Control Manager, Fluor Daniel Hanford
Jim Trujillo, Enhanced Work Planning Program Manager, Fluor Daniel Fernald
Richard L. Brehm, Abaris Technologies
Dave Humphrey, EH Technical Support, DOE Headquarters♦

THE FUTURE OF EWP

The EWP initiative has provided itself a valuable tool for helping the Department of Safety conduct work and save the taxpayer money at the same time. With the award of the National Performance Review Board Hammer Award, EWP has proven that it is part of the President's effort to reinvent government. The EWP program welcomes new DOE sites. As new sites begin EWP programs, the lessons learned from other sites are available to ensure efficient, effective start-ups. As sites demonstrate results that indicate full implementation, official "turnover" will be documented, and victory declared. The new processes should then be fully owned by the workers, and continuing program improvements monitored through their own self-assessment processes.

Summary of Issues Addressed

An historian, writing the history of the Department's Enhanced Work Planning initiative, would be hard pressed not to compare it to the children's story *The Little Engine That Could*. When the effort

was first begun in 1994, the Department was under intense pressure to perform work. However, the efforts over the prior seven years to assure a zero risk safety environment had resulted in an infrastructure that for all intents and purposes, hindered the accomplishment of work.

The skills, proficiency, attitude, and morale of both the worker and management suffered. Often full of extraneous information, task orders were frequently so complex, and described work in such excruciating detail as to be insulting to workers. The procedures actually prevented work from being accomplished due to seemingly endless cycles to correct errors, omissions, or conflicts. Every fix, every ivory tower idea, only seemed to increase the problem. It was in this environment, that the Enhanced Work Planning (EWP) initiative got its license.

The task before us was to streamline the work package planning process; weed out duplicate and unnecessary management and safety requirements; improve the scheduling and delivery of resources to carry out work; accomplish work on budget, when and as scheduled; to provide feedback on the effectiveness of the process; and, do it safely. To many of us, this was and still is, a simple "Plan, Do, Check, Act" approach to work control. Long before Integrated Safety Management, we recognized the importance of just such an approach, and because of it, EWP is now seen as an integral part of this key departmental initiative.

To streamline the work planning processes, EWP broke down individual disciplinary stovepipes, and institutionalized the idea of work planning teams. Work package reviews, which had once been preformed in a serial fashion, were now performed in parallel. With increased communication between actual workers and technical specialist, the inclusion of unnecessary safety and health requirements are now flagged and prevented. This allowed workers to focus on requirements that truly impacted the safety and health of the task. Worker involvement in the work descriptions ensured that work is defined in reasonable, doable, terms. Accurate and useable work packages, daily and weekly planning and scheduling meetings have resulted in work, for the first time in recent memory, being accomplished not only as scheduled, but also accomplished effectively as well as safely. With their ability to once again get work done, we have seen the return to workers their sense of worth, and their sense of pride.

While we have accomplished much over the past few years, and have much to be proud of, much has yet to be done. The ideas of worker involvement, graded approach to work, line management ownership, communications of success as well as failures, and key principles upon which Enhanced Work Planning are built upon, are still only known to a fraction of the Department. While the EWP standard is firmly planted in the field of maintenance, we have had only limited success in exporting to other areas of Department activities such as Facility Operations, Environmental Remediation, and Waste Minimization, where work management principles are applicable.

In addition to expanding the scope of work activities utilizing EWP principles, we

must also expand the depth of EWP application. Even with the remarkable success of EWP to date, many sites and facilities have yet to apply EWP. We need to look at each new site, each new functional area as fertile ground not only for applying the principles of EWP, but for identifying unique tools or activities that the Department in general can gain from. To expand into other sites and areas, the Department will increasingly rely on the support and knowledge of those in the field who have pioneered the way.

The time when the Department had enough money not only for each site, but often facilities within a site, to have their own work management process has passed. Congress, and the taxpayers they represent are demanding that we effectively utilize the resources provided to us. Refusing to apply an element of a program or a specific tool just because it was not invented at a given site will only play into the hands of those who say the Department is unwilling to fix itself. On the other hand, squashing entrepreneurship for the sake of consistency will do the Department no good. Instead, we must strive for the establishment of an environment of open and continuous improvement, where new and innovative ideas are circulated, debated, tested, and if deemed acceptable, applied. In the end, by creating this environment, we cannot help but move toward a consistent approach to work management, as each site adapts from, or adds to, a common menu of the best.

EWP has come along way since its conception, but one thing has remained consistent in its message, namely that EWP is, and always should be, focused on promoting a step change in the efficiency of a facility's work management process. Once enhancements to a site's work management process are identified, the EWP process should end, and self-assessment should once again resume its role in promoting continuous improvement. While this idea is lofty in principle, it will in reality require many of us to leave a program that we have nurtured and grown with. Instead of lamenting the end of the EWP, we should all work doubly hard to assure that we are successful in our efforts to end it. If we can end it, on our own terms, we will have made a significant contribution to the ability of the Department to complete its present mission. Like any good servant, the ability to successfully complete one mission while forming the basis for future missions should be our goal. By ensuring success today, we sow the seeds of our own future.

Path Forward (As decided by the Steering Committee in the October meeting)

First, those sites who claim involvement with the EWP initiative must apply the full rigor and scope of the EWP process and principles. Conversely, those sites unwilling to commit to full engagement will be unable to claim EWP involvement. Secondly, DOE sites with the potential to implement EWP programs should be contacted and, if interested, supported in the EWP implementation process. Thirdly, the focus of the EWP Initiative should be on developing and implementing a consistent approach across each site and eventually across the DOE complex in the areas of work planning, hazard analyses, and genuine worker involvement. Lastly, EWP, an integral part of ISM, integrates well into other Departmental programs and initiatives (e.g., VPP, ChemSafety,

Lessons Learned, Waste Minimization). Better coordination, communication and appropriate integration will be a core focus.

Participants

B. Michael Hillman, Director, Office of Field Support, DOE Headquarters♦